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TWENTY-SEVENTH ANNUAL REPORT

OF THE

ILLINOIS STATE BEEKEEPERS' ASSOCIATION

THIRTY-SEVENTH YEAR OF ASSOCIATION

Organized February 26, 1891, at

Springfield, Illinois

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Compiled by
V. G. MILUM
Champaign, Ill.

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Agriculture

LETTER OF TRANSMITTAL

OFFICE OF THE SECRETARY,
CHAMPAIGN, ILLINOIS, April 17, 1928.

To His Excellency, LEN SMALL, Governor of the State of Illinois:

SIR: I have the honor to transmit herewith the Twenty-seventh Annual Report for the thirty-seventh year of the Illinois State Beekeepers' Association.

V. G. MILUM, *Secretary.*



ILLINOIS PRINTING COMPANY
DANVILLE, ILLINOIS
1928

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TWENTY-SEVENTH ANNUAL REPORT
FOR THE THIRTY-SEVENTH YEAR
OF THE
Illinois State Beekeepers' Association
1927

**OFFICERS OF ILLINOIS STATE BEEKEEPERS'
ASSOCIATION FOR 1927**

DR. A. C. BAXTER	-	-	-	-	-	-	President
			Springfield				
A. L. KILDOW	-	-	-	-	-	Inspector of Apiaries	
			Putnam				
E. A. JOHNSON	-	-	-	-	-	Vice-President	
			Peoria				
W. H. FORCE	-	-	-	-	-	Vice-President	
			Champaign				
W. K. GALEENER	-	-	-	-	-	Vice-President	
			Vienna				
E. A. MEINEKE	-	-	-	-	-	Vice-President	
			Chicago				
L. PETERSON	-	-	-	-	-	Vice-President	
			Kewanee				
ELMER KOMMER	-	-	-	-	-	Treasurer	
			Woodhull				
G. H. CALE	-	-	-	-	-	Secretary	
			Hamilton				

List of members and index in back of report.

**OFFICERS OF ILLINOIS STATE BEEKEEPERS'
ASSOCIATION FOR 1928**

DR. A. C. BAXTER	-	-	-	-	-	-	President
			Springfield				
A. L. KILDOW	-	-	-	-	-	Inspector of Apiaries	
			Putnam				
E. A. JOHNSON	-	-	-	-	-	Vice-President	
			Peoria				
C. A. MACKELDEN	-	-	-	-	-	Vice-President	
			Jerseyville				
E. A. MEINEKE	-	-	-	-	-	Vice-President	
			Arlington Heights				
TOM BENTON	-	-	-	-	-	Vice-President	
			Johnston City				
EMORY WARNER	-	-	-	-	-	Vice-President	
			Monticello				
ELMER KOMMER	-	-	-	-	-	Treasurer	
			Woodhull				
V. G. MILUM	-	-	-	-	-	Secretary	
			Vivarium Bldg., Champaign				



DR. A. C. BAXTER, SPRINGFIELD, ILLINOIS
President Illinois State Beekeepers' Association

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**MINUTES OF THE THIRTY-SEVENTH ANNUAL MEETING
OF THE ILLINOIS STATE BEEKEEPERS' ASSOCIATION
—SPRINGFIELD, ILLINOIS, DECEMBER 6-7, 1927**

The meeting was called to order at 9:00 a. m. Tuesday, December 6th, at the Hotel St. Nicholas, with Dr. A. C. Baxter of Springfield presiding.

The minutes of the last meeting were read and approved.

A program of speakers followed during the next two days which included addresses by the following persons: Geo. S. Demuth, Medina, Ohio, "Some Phases of Marketing"; M. G. Dadant, Hamilton, Illinois, "Report on the 1927 Meeting of the American Honey Producers League"; C. D. Adams, Supervisor of Honey Grading, Wisconsin Department of Markets, "What the Wisconsin Honey Grading Law Means to Wisconsin Beekeepers"; Russell H. Kelty, East Lansing, Michigan, "Sales Builders"; Herbert J. Link, La Porte, Indiana, "The Commercial Apiary and the Amateur Beekeeper"; V. G. Milum, Champaign, Illinois, "The Useful Structures of the Honey Bee"; F. B. Paddock, Ames, Iowa, "Improved Strains of Bees"; Frank C. Pellett, American Bee Journal, Hamilton, Illinois, "Illustrated Travelogue of American Beekeeping"; W. J. Nolan, U. S. Bee Culture Laboratory, Washington, D. C., "The Importance of Grading as We See It and What It Means"; Geo. S. Demuth, "Cutting the Cost of Production"; and Mrs. Ida H. Cornforth, Kellogg Company, Battle Creek, Michigan, "Consuming Nature's Own Sweet."

At the preliminary business meeting, held Tuesday a. m., December 6th, President Baxter appointed the following committees: Resolutions, E. A. Johnson, Peoria, E. A. Meineke, Arlington Heights; Banquet, Elmer Kommer, Woodhull, A. L. Kildow, Putnam; Question Box, W. H. Williams, Pekin; Auditing, A. G. Gill, Chicago, and Wallace R. Smith, Cameron.

The Treasurer's report was read by Elmer Kommer and referred to the Auditing Committee who recommended its approval at the final business session on Wednesday a. m., December 7th. The report was accepted as approved.

The report of the State Apiary Inspector, Mr. A. L. Kildow, was given.

The resolutions accompanying these minutes were submitted by the Resolutions Committee and after a separate reading of each resolution each was adopted by vote of the members present at the final business session.

The following officers were elected for 1928: President, A. C. Baxter, Springfield; Vice-Presidents, E. A. Johnson, Peoria, C. A. Mackelden, Jerseyville, E. A. Meineke, Arlington Heights, Tom Benton, Johnston City, Emory Warner, Monticello; Treasurer, Elmer Kommer, Woodhull; Secretary, V. G. Milum, Champaign.

On Tuesday, December 6th, a banquet was held at the Hotel St. Nicholas, with Senator Boyd, of Galva, Illinois, and Director S. J. Stanard, of the Illinois Department of Agriculture, giving the principal addresses of the evening.

RESOLUTIONS APPROVED AND ADOPTED AT THIRTY-SEVENTH ANNUAL CONVENTION, DECEMBER 6-7, 1927

BE IT RESOLVED, That the Illinois Beekeepers' Association in its 37th Annual Convention assembled, at Springfield, Illinois, December 6-7, 1927, hereby approve and adopt the following Resolutions and that a copy be spread upon its books and copies sent to the various appropriate authorities concerned.

1. To the United States Census Bureau, Washington, D. C.

WHEREAS, there are at the present time several million of colonies of bees in the United States of America, and the exports of honey for the fiscal year ending June 30th, 1927, were in excess of eleven million pounds from the United States to other countries, and

WHEREAS, the past census renumeration of the number of colonies of honey bees in the United States of America, and the exports of honey for the fiscal year ending June 30th, 1927, were in excess of eleven million pounds from the United States to other countries, and

WHEREAS, the value of bees, honey, wax and products therefrom, in the United States greatly exceeds many other agricultural interests now included in the census blank, the question should now be inserted in the said blanks for towns and cities to make a complete and truthful return, and

WHEREAS, the interests of the beekeepers as well as the Government need further information and correct returns thereon, and that the past returns as made by the United States Census Bureau are misleading, inaccurate, and are a detriment to the agricultural interests and are worse than no census figures at all, therefore,

BE IT RESOLVED, that we, the Illinois State Beekeepers Association petition your honorable bureau and ask that in the next census blanks for farms, towns and cities, that questions be inserted therein so that each person will be asked the number of colonies of bees owned by him or her, and the number of pounds of honey and wax produced yearly therefrom and a complete and accurate return be given thereon.

Adopted at Springfield, Illinois, this 7th day of December, 1927.

THE ILLINOIS STATE BEEKEEPERS' ASSOCIATION.

Attest:

A. C. BAXTER (*Signed*)
President

V. G. MILUM (*Signed*)
Secretary

2. BE IT RESOLVED, that this Association extend to Mr. C. H. Robinson, now of Puyallup, Washington, a former Vice-President

of the Association of Normal, Illinois, the Association's expression of sympathy upon the recent death of his wife.

3. BE IT RESOLVED, that a vote of thanks be extended to the authorities of the Hotel St. Nicholas, for their continued courtesy and cooperation in allowing the use of the hotel parlors for our meetings and other services rendered.

4. BE IT RESOLVED, that this Association hereby extend a vote of thanks to all those who have taken part in its meetings, contributing of their time and efforts to make it such a successful convention.

5. BE IT RESOLVED, that this Association hereby express its appreciation and gratitude to the State authorities who have so thoughtfully and efficiently supported the association in its efforts to build up the beekeeping industry of this state, and especially to the University of Illinois and to Prof. V. G. Milum who has done so much during the short time since he has been with the association.

6. BE IT RESOLVED, that this Association hereby thank all its officers for their conscientious, faithful service during the past year.

(Signed) E. A. JOHNSON,
E. A. MEINEKE,

Resolutions Committee.

REPORT OF THE TREASURER FOR 1927

December 6, 1927.

To the Illinois State Beekeepers' Association—GREETINGS.

I herewith make my second annual report as Treasurer subject to your approval:

RECEIPTS

Balance on hand at last convention.....	\$274.65
Mar. 19, 1927—Received from A. E. Swanson, Treasurer Henry County, 32 members.....	\$ 16.00
June 4, 1927—Received from G. H. Cale, Sec'y Ill. State Beekeepers' Ass'n	118.25
July 27, 1927—Received from A. E. Swanson, Treasurer Henry County, 8 members.....	4.00
Oct. 21, 1927—Received from A. E. Swanson, Treasurer Henry County, 10 members.....	5.00
Nov. 19, 1927—Received from G. H. Cale, Sec'y Ill. State Beekeepers' Ass'n	95.65
Dec. 2, 1927—Received from W. C. Egbert, Treasurer Mercer County, 13 members.....	6.50
Total receipts.....	<u>\$520.05</u>

EXPENDITURES

Dec. 15, 1926—Executive Com. Expense, Elmer Kommer....	\$ 23.30
March 19, 1927—Fair Premium Meeting, Elmer Kommer...	15.00
April 8, 1927—Fair Premium Meeting, M. G. Dadant.....	16.80
May 20, 1927—Salary 6 mos. to G. H. Cale, Secretary.....	100.00
Nov. 19, 1927—Salary 3 mos. to G. H. Cale, Secretary.....	50.00
Dec. 6, 1927—Salary 3 mos. to G. H. Cale, Secretary.....	50.00
Total expenses.....	<u>\$255.10</u>

RECAPITULATION

Receipts	\$520.05
Expenditures	255.10
Balance on hand.....	<u>\$264.95</u>

(Signed) ELMER KOMMER, *Treasurer*.

December 7, 1927.

We have examined the above and find it correct.

(Signed) A. G. GILL,

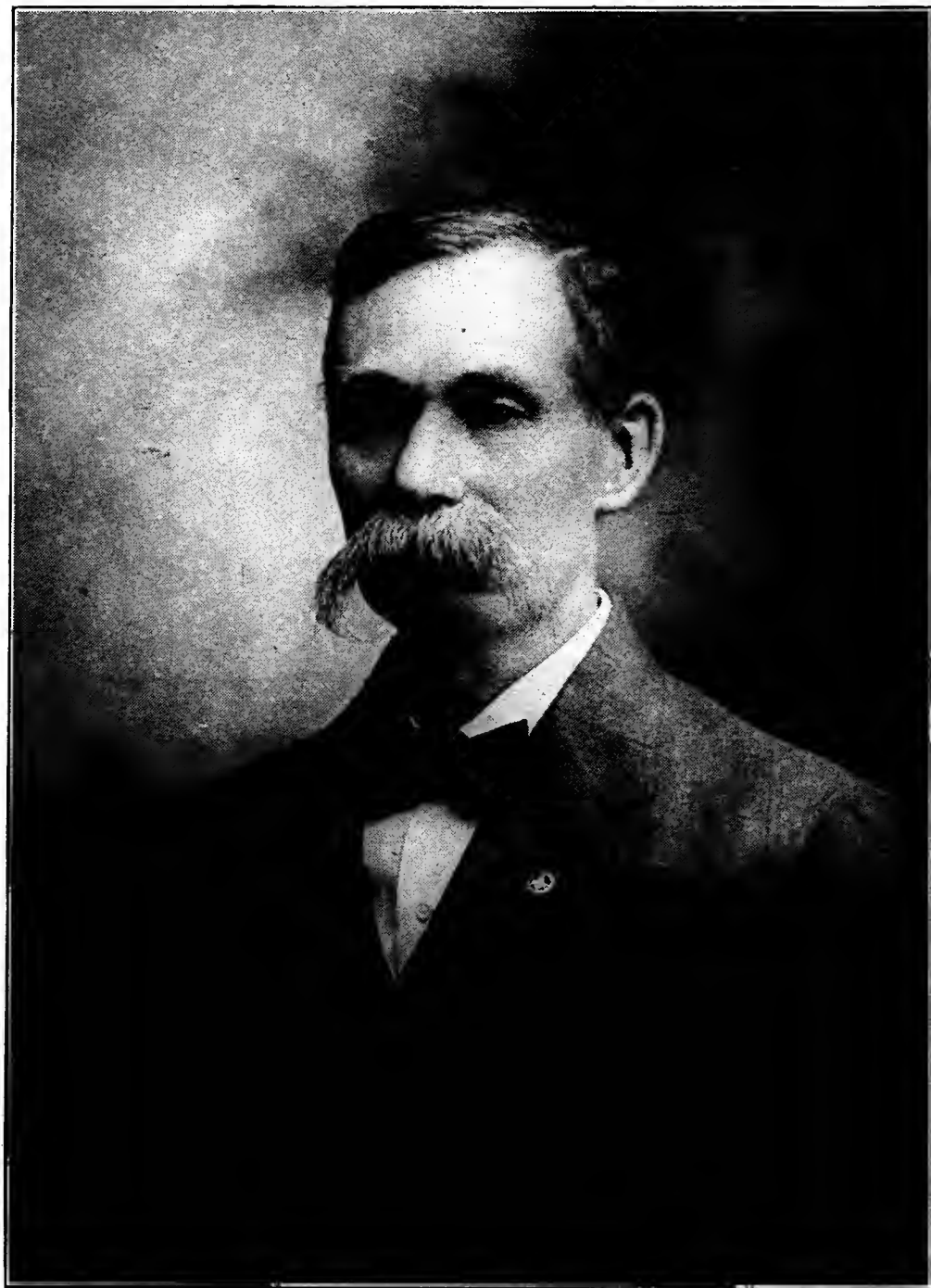
WALLACE R. SMITH,
Auditing Committee.

**REGISTERED ATTENDANCE AT 37TH ANNUAL MEETING
OF THE ILLINOIS STATE BEEKEEPERS' ASSOCIATION,
AT SPRINGFIELD, ILLINOIS, DECEMBER 6-7, 1927**

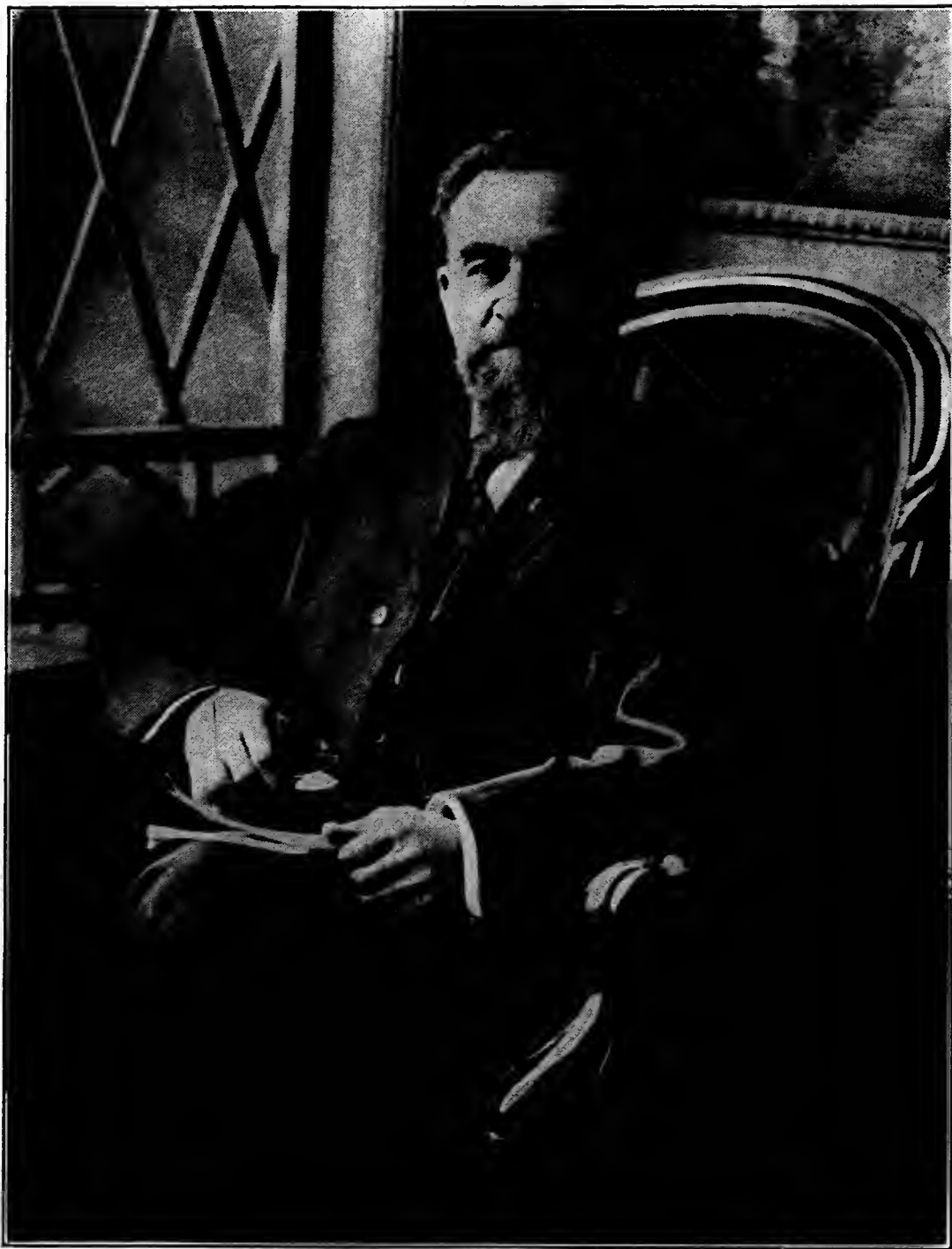
Roy Annear, Mulkeytown
C. D. Adams, Wis. Dept. of Mar-
kets, Madison, Wis.
Dr. A. C. Baxter, Springfield
Wallace R. Beaver, Lincoln
Mrs. Paradine Bell, Kingston Mines
B. F. Bell, Kingston Mines
Fred F. Bellaltu, Mt. Pulaski
Frank Bishop, Taylorville
Randolph Boyd, Galva
J. H. Boyd, Jr., Galva
H. H. Braun, Williamsville
Ernest J. Campbell, Springfield
H. L. Clower, Morrisonville
Mrs. Conforth, Kellogg Co., Battle
Creek, Mich.
M. G. Dadant, Hamilton
Geo. S. Demuth, Medina, Ohio
John Dineen, Springfield
Benj. H. Fischer, Roanoke
W. H. Force, Champaign
Jake Frey, Mechanicsburg
A. G. Gill, Chicago
George B. Gillett, Hanna City
E. A. Johnson, Peoria
Mary F. Johnson, Rue Seed Co.,
Peoria
Edw. C. Heldt, Stanford
Otis Kelley, Marion
R. H. Keltz, East Lansing, Mich.
Dennis Kempf, Roanoke
A. L. Kildow, Putnam
Wm. S. Kirk, Farmersville

Edwin Kommer, Andover
Elmer Kommer, Woodhull
J. N. Koritz, Buckley
H. J. Link, LaPorte, Ind.
C. A. Mackelden, Jerseyville
Mr. and Mrs. E. A. Meineke, Chi-
cago
R. C. Merideth, Whittington
V. G. Milum, Champaign
Ross R. Morrill, Batavia
W. J. Nolan, Bee Culture Labora-
tory, Washington, D. C.
F. B. Paddock, Ames, Iowa
Frank C. Pellett, Hamilton
Edwin Peterson, Kewanee
Lawrence Peterson, Kewanee
George Rasmussen, Urbana
Roy Roselieb, Prophetstown
Wallace R. Smith, Cameron
Wm. J. Snyder, Decatur
Stillman J. Stanard, State Dept. of
Agriculture, Springfield
Edwin M. Stanton, Jr., Aurora
Jas. A. Stone, Farmingdale
Alfred E. Thomas, Secor
Carl H. Tudor, DeKalb
S. A. Tyler, San Jose
Emory Warner, Monticello
W. H. Williams, Pekin
J. W. Wooldridge, Chicago
R. E. Wooldridge, Chicago
Walter J. Wright, Tiskilwa

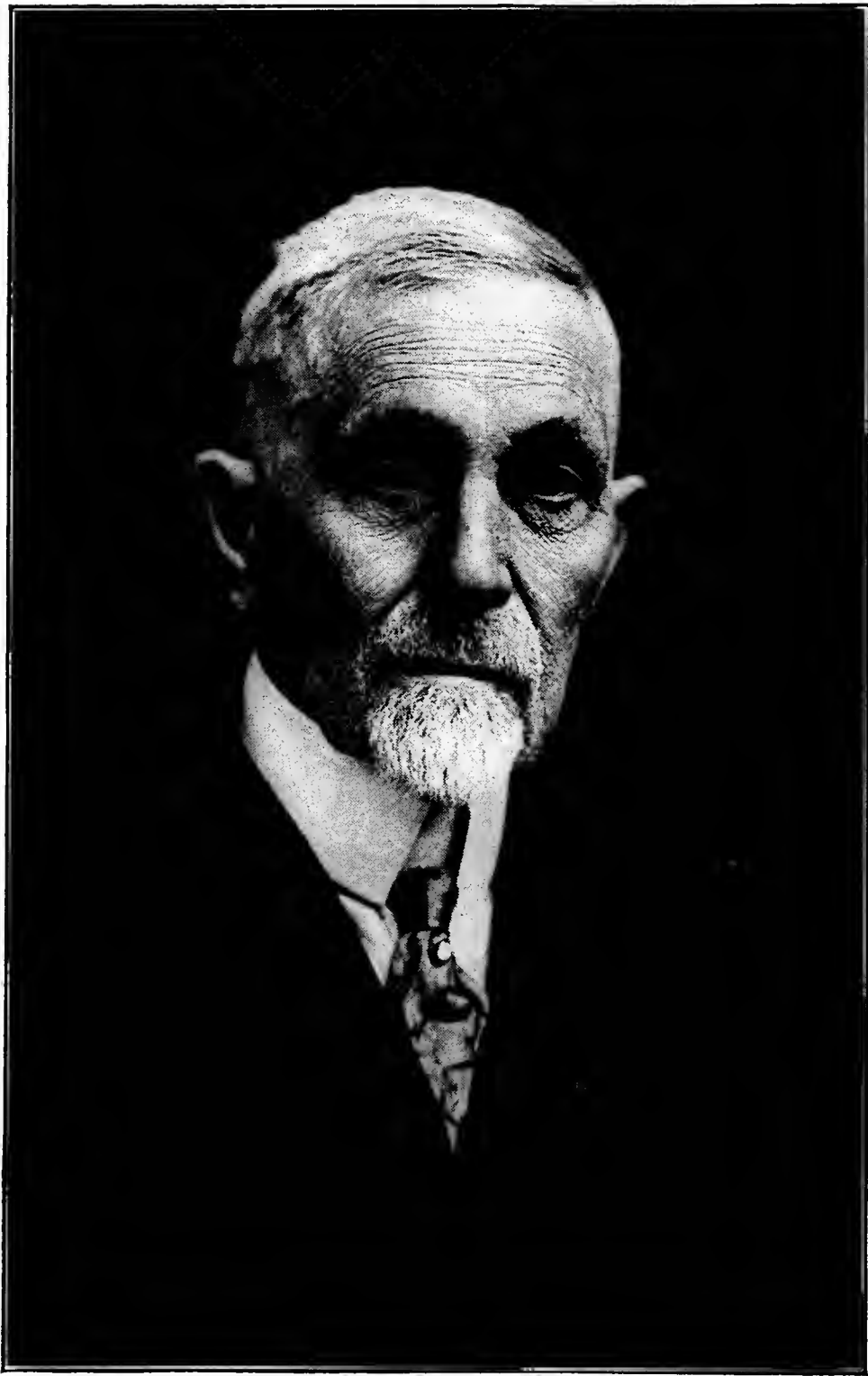
1928
CHARTER MEMBERS
OF THE
Illinois State Beekeepers' Association
ORGANIZED FEB. 26, 1891



AARON COPPIN, WENONA, ILLINOIS
Charter Member, Illinois State Beekeepers' Association



C. P. DADANT, HAMILTON, ILLINOIS
Charter Member, Illinois State Beekeepers' Association



JAS. A. STONE, FARMINGDALE, ILLINOIS
Charter Member, Illinois State Beekeepers' Association

A BETTER RACE OF BEES

(F. B. Paddock, Ames, Iowa)

The origin and early history of the honey bee is as fascinating as any fairy tale ever written. Bees were known to man in the fertile Hindustan plains before the ancient Egyptians used the bee as a symbol of industry and royalty. Bees have given service to mankind from the beginning when honey was obtained from hollow rocks as well as hollow trees. The strange thing is that bees have never been domesticated as have other animals, such as the dog, horse and cow. Man has slowly devised means and methods of getting along with bees in a way by which more could be obtained from them.

The origin of the honey bee with its social development, with its inter-relations to plants and animals is a tantalizing question. How was it able to survive the struggle which carried out many forms of even higher plant and animal life? Did the honey bee ever exist in the colder portions of the earth at any period in its early development? If it originated in South India is it essentially a creature of warm climates? Has its spread been restricted to its ability to adapt itself to more rigorous climate? Or has its spread been restricted by food plants on which it may subsist? Has the social instinct been improved by the aid of man or has he enabled it to more fully expand along lines of natural instinct? Has the honey bee adapted itself to its surroundings, storing more honey for food in northern climes to enable it to successfully withstand long rigorous winters? Does it fail to store for winter in climes where nectar is available throughout the year? Today we find bees doing well in Alaska and in Norway north of the 64th parallel. In Siberia they do not seem to exist north of the 51st latitude but in the Canadian Provinces they are slowly working north of this line.

There are sixteen species of the genus *Apis* whose natural occurrence is restricted to the Old World. The species of the honey bee *A. mellifica* has many varieties which we now see fit to call races. This admits that all came from a common stock and that some influence has brought about variations. It is next logical to assume that these variations enable the bee to better meet the local conditions with which it is confronted.

Shuckard in "British Bees" says *Apis mellifica* has been naturalized in America—they were originally conveyed there by Europeans. Pellett, after reviewing Purchas' "Political Flying Insects" of 1657 says, "There is every reason to believe that the honey bee was introduced into America by the early colonists."

Buttel-Reepen records "The dark German was found in Germany, Russia, Norway, Sweden, Denmark, Holland, Belgium and England at very early dates. It was recorded in New England in 1638 and in West Florida in 1763. It is safe to assume that the stock of bees for America came from European parentage. This stock constituted the beekeeping industry for over 200 years but there are no records available to give us the information on the success of the race.

It was not until 1855 that Italian bees were introduced into the United States. This race was quite well distributed over the northern portion of the country. In 1864 it was said, "The Italian bee has now been generally introduced into all parts of our country and is received with so much favor." It was not until 1900 to 1910 that the Italians really gained a foothold in American beekeeping when it was found that they were more resistant to disease than the black race. Now we find Baldensperger declaring a new race—the yellow American Italian. "These are now known all over the American beekeeping world, has caused considerable admiration for its beauty, probably as much as did the first importation of native Italians by Baldenstein in 1843 to Switzerland. The American Italians are not yet completely fixed in their coloring, some showing more or less black borders on the segments."

Since the Italian bee was introduced into this country before other races and since it has become widespread and since we have developed an American race it is well to look into the origin and history of this race. Baldensperger says the origin or introduction of this bee or its hybridization is not definitely known, but a hypothesis may be formed. Aristotle and Virgil both had a knowledge of dark and bright bees. The Greeks were well versed in beekeeping as early as 750 B. C. with bars in their hives and regulations in regard to overstocking. The bees were taken wherever the primitive sailors went and where this stay was to be more than one year an apiary was established. The Greeks probably brought the yellow Cyprian race with them. These spread in the spring following their arrival and crossed with the dark race then existing on the Italian peninsula. How easily a new race of bees can be introduced and become dominating in a short time is seen in the case of the Italians supplanting the blacks which were in America two centuries earlier and are now on the verge of extinction. As the Roman civilization advanced north so did the yellow bees, absorbing the blacks and forming the modern Italian race. This race does not yet show a constancy in color, there are dark Italians and light Italians. Drones of this race sometimes are bright yellow and again may show but a narrow ring on the first segments. Centuries passed but it was not until the nineteenth century that the attention of modern beekeepers was called to the beautiful yellow banded bee of Italy.

In 1843 a Swiss apiarist took a few colonies home with him from Italy. It was not until 1853 that Dzierzon introduced bees from Italy to his home in Silesia, Germany. It was with these Italians that he was able to prove his theory of parthenogenesis. The Italians were first brought into France by Hamet in 1856 but have not made such rapid progress as they have in America. The first importation to America was made through Dzierzon in 1855 and the first direct shipment was in 1860 to S. B. Parsons of Flushing, New York. M. Mahan of Philadelphia also received queens this year. In 1863 importations were made by Langstroth from Germany. The Italian Bee Company was organized at Des Moines in 1865 with Mrs. Ellen Tupper and Mrs. Annie Savery as partners. In 1872 Chas. Dadant contracted with Mrs. Tupper to make a trip to Italy to prepare bees for importation to America. The Dadants had receive shipments from Italy in 1868 following Adam Grim of Wisconsin who went to his home in Germany and to Italy to send bees back to his own yards in 1867.

According to Baldensperger "The Italian bees have from one to three yellow segments bordered with black rings. On these the yellow-brown fuzz or hairs appear in the young bees but gradually disappears with age. Buttel-Reepen divides the Italians into two colored strains, the brownish bees of the south and the more yellow of the north. Italian drones very often show only a single narrow ring which is hard to detect sometimes. The Italians are fairly good breeders in their native country but they do not arrange their winter stores and winter clusters as well as the brown bee. They do not surpass nor even equal other races of bees in honey gathering qualities. This is particularly true of the American strain of Italians. They raise a limited number of queen cells and drones as their swarming is moderate. Their gentleness depends on the region from which they originate. They are not as good section honey builders as the brown or the Carniolan bees."

The second race of bees to be imported into the United States on an extensive scale is the Carniolan. Benton made shipments in the early '80's of this race. At the same time Dadants imported 10 Carniolan queens which were sent by Fiorini who made a special trip from Italy to Carniola at the instance of Chas. Dadant.

In speaking of the Carniolan bee, Jager says, "The large silver grey bee is found northeast of the Mountain divide of the Alps, in former Austria. They extend as far north as the Danube river where they begin to assume a brownish color which turns into a black toward Germany. They extend east into the Banat plains of Hungary and South into the Balkans as far as the Bistrica river. They are found in their purest type in Carniola but on the Adriatic coast a mixture of yellow blood is found. The segments of the abdomen are black, banded by a grayish

ring covered with a whitish fuzz. It is by this fuzz that Carniolans can be distinguished from brown bees."

Baldensperger tells that "They are very good breeders, as they have inhabited countries with early and late honey plants. The swarming seems to have been developed from the type of hive in use by the apiarists of Carniola. The small hives are carried up the mountain paths to the heather areas on the shoulder of the owner. They breed well late in the summer. They have proved one of the best races for producing comb honey and are very mild tempered."

The Caucasian bee is of comparatively recent introduction in America. The fact that there are two rather distinct color strains has led to misunderstandings as opinions have been formed on one or the other color. Baldensperger says some are dark and some bright yellow, according to their origin. Butterov was the first to call attention to this race in 1877. Importations were made to Germany in 1879 by Gunther of apparently the yellow strain. In 1883 the dark strain was introduced to Germany. Mention is made of an importation to America in 1880 but no trace can be made of this. Both color strains were introduced in southern France in 1904. Introductions were made by Phillips into America in 1905, presumably of the dark strain. The origin of either of these strains is much shadowed but may be traced to bees which journeyed northward from Hindoostan through Persia or perhaps a mixture of Syrian and Asia Minor bees. More recently the Caucasian bee has been described as "Grey," a bee with grey hair all over. According to Mikhailoff the dark or grey bee is the true Russian bee, which is distributed over most of Russia. The yellow bee is distinctly a product of the extreme south and does not withstand the rigorous winters of Russia in general.

The Caucasian bee is noted for its gentleness which is reputed to be marvelous. They are exceedingly industrious, withstand cold winters, breed up well and do not swarm readily. This race of bees did not take well in America because of their dark color and because they have an unpleasant habit of plastering propolis on the frames and especially at the entrances to their hives. Recent studies on anatomy made in Russia show some variation in the tongue length of the Caucasian race, from 6.36 mm. to 6.73 mm. from the south to north provinces. The tongue length of the Italian bee is 6.25 mm. In Russia the honey bee is mentioned as a pollinator of red clover.

In the history of American beekeeping the races concerned are the black bee which is probably of the heather variety, the Italian, the Carniolan and the Caucasian. The black bee persisted for two hundred years before the Italians were introduced and in spite of quite general distribution it was another 50 years before the Italian race seriously replaced the blacks. During the last quarter century the process of Italianizing has been a real

accomplishment. Why has the Italian become so universal with the American beekeeper? This can be answered in part only and then with only partial satisfaction. The black bee was wholly unsatisfactory for American conditions as it has been in every other country. By some stroke of fate commercial intercourse permitted the introduction of the Italian bee. The yellow color was striking here as it was in Germany and other countries. By some fling of psychology the yellow color gained a real foothold in America but the beekeepers here have never been really impressed with the true race of Italians as they are too dark in color. The breeders have acknowledged that it was necessary to lighten the color. This was done first by introducing Cyprian blood with disastrous results of disposition. Selection has been the basis of operation to the extent that the Italian bee of America is now considered as a race, so far changed is it from the native of Italy. What has been the goal of the American breeders as gauged by the demands of the beekeepers? The first consideration has always been color, the second has been disposition with all other traits falling in the group of secondary characters. The trait which really placed the Italian bee in American beekeeping was that it was more resistant to European foulbrood than were the blacks. There is a question if this was any special physiological condition or a natural vigor of the race. What else has been obtained in the Italian bee for American beekeepers? The race is not considered superior in honey gathering ability to Carniolan, Swiss or Caucasian in Europe. Only strains are adapted for comb honey production and frequently the comb producers are trying to develop their own strain to get more production and better finish of cappings. The Italians will propolize on frames wherever the raw product is available, especially in the South. Where the Italians are kept under favorable conditions swarming can be kept to a minimum but with indifferent methods there is plenty of swarming. The Italians are not as gentle as other races, the point of second rank with American beekeepers. The Italians do not winter well and why? There are two reasons and perhaps more. The race was developed under conditions not as severe as through the northern part of America. They are recognized in France, England and Russia as poor in provisioning the brood nest for winter. They do drift, are bad robbers and both of these factors can have a great influence in the spread of American foulbrood. These traits are borne out by European investigators. Evidence is accumulating in this country bearing on the disease dissemination.

The Carniolans were discarded in America because of color and swarming tendencies. It was said that the queen was hard to find and mismating was hard to detect. The test of swarming was conducted when beekeeping was in the 8-frame stage. Now we have passed to a hive of 3 times that capacity and our bee-

keeping is on a higher level with much more foundation being made into perfect combs. What was the problem of the beekeeper with Italian bees ten to fifteen years ago? If it wasn't swarming then we had much talk going to waste. How do we meet the swarm problem with Italian bees? The recommendations are room, perhaps by the DeMaree method, foundation to make perfect combs to reduce the drones that can be reared. Would not the effort put in today with Italians also work with Carniolans?

What did we discard with these bad traits? Disposition is one of the prime requisites of American beekeepers. It is found without question in the Carniolans. Good comb honey builders would bring joy to many beekeepers, our markets need more and better section honey. Carniolans cap honey almost perfect and will work efficiently in small quarters, as the sections are. Fall feeding is a prime necessity in modern beekeeping. In England and France the Italians are not considered practical because they do not provision the brood nest for winter but the Carniolans do. In Washington a beekeeper reports making nuclei in late summer of Italians and Carniolans. The former had to be united to make colonies to winter while the latter made colonies which came out in the spring in fine shape and made a good crop of honey. Drifting is a happy faculty of Italians which may be a factor in disease spread. Captain Harmeling says, "I have several pairs of hives only 4 inches apart, one of Italians and one of Carniolans. I have never seen a Carniolan in an Italian hive but any number of Italians in the Carniolan hives." Again in speaking of robber bees he says, "The Carniolans do not follow the operator about the yard by tantalizing and threatening as do the Italians. I have knocked down such bees with a paddle but have never killed a Carniolan bee."

Let us look at the Caucasian bee. It was thrown into the discard by American beekeepers, because it was dark in color and because it propolized. Is it possible any valuable characters were thrown away? Are mismated or hybrid bees of the Caucasian race any worse in disposition than Italians? In either case one can lay the blame on the black race? When we find an Italian colony which has been mixed with blacks and has a bad disposition what is done? We requeen and that could be with Caucasians. Propolis is a disagreeable thing and surely there's plenty of it with Italians.

The Caucasians are said to be the gentlest race of bees known, sometimes called the "ladies' bee." Disposition is a virtue to the American beekeeper. Herman Rauchfuss says, "They cannot be surpassed for gentleness, in the apiary where the queens are raised, I handle the bees without veil and very little smoke. They will not attack away from the hive and can be placed in orchard, home yard or on public highways." The Caucasians cap their honey very white making good section producers. According to Rauchfuss, "The caps are rougher, are

composed of more wax and are whiter in color." This race of bees provision their brood nest well for winter and they winter much better. Just why may be due to ample stores or as Rauchfuss says, "They stand confinement better." They are able to withstand very low temperatures successfully and do come out of winter better than other races. They are a little later starting brood rearing but build up faster than the Italians in the opinion of Rauchfuss. In view of the recent work of the Tula Experiment Station in Russia it may be that the Caucasian bee can obtain nectar from red clover. It has been found that their tongue length is 6.73 mm. where as the tongue length of the Italians is considered as 6.25 mm., an increase of 7.7%.

What is the deduction to be made from this discussion? There are several and each can take their choice. As American beekeepers we have chosen a race of bees for our industry, to be used under all conditions and at all times. Have we chosen the best race that was available to us? Have we taken what chance turned our way and tried to make the best of it? How successful have we been in this attempt? It would seem that we have made a choice for reasons not any too well grounded and now we are sticking to that choice in a blind fashion, hoping that it will turn out for some good. Is it possible that we are creatures of habits, unable to change from the path which is made for us? Is the Italian race of bees best for all the vast expanse of America? It is not reasonable to expect that it will meet the requirements of climate equally well in North Dakota, Wyoming and Texas. It is not done in any other line of plants or animals in this country and is not done with bees in any other country. It would be just as logical to say that the Jersey cow should be the only animal for milk production, or the Leghorn hen should produce all our eggs. Wouldn't it seem foolish to say that because a Plymouth Rock hen was more inclined to be broody that it should be thrown into the discard? Have we been open minded in our deal with the race of bees? What is our plant introduction work for, to find an alfalfa or plum to survive in the Dakotas, plants to make the southwest arid region productive. The Iowa Station is trying to develop varieties of apple hardy to the climate of that state. Minnesota did that in the red raspberry, now called the Latham. What is the beekeeper doing, keeping Italian bees.

Should we say that a wrong choice has been made and that we should select the Carniolans or the Caucasians for the American Standard? Not entirely but such a choice would not be any worse than the one which has been made. We got color in our choice and that's about all. We didn't get good quality producers nor good winterers, nor good disposition. We got something that is nice to look at. What is to be done, produce a race of bees which is suited to America? It will be necessary to go farther and develop races or strains which are adapted to area conditions within this vast country. The demands are not the same for

extracted as for comb production—not the same in Colorado as Alabama. It is not logical to expect any race to do equally well all over the country.

The oldest effort along this line has been made by the Swiss who have discarded the introduced strains, and are improving by selection a strain to meet their peculiar problems. The English have not found any introductions satisfactory for their peculiar conditions. An effort was made to establish mating stations on the Shetland Islands where a reasonable control could be maintained. The mountain region of America seems more interested in such an endeavor and some work has been attempted in selection by isolation stations in Wyoming.

The discovery of Watson that controlled mating is possible opens the way for real progress in producing a race or races of bees to meet our conditions. Let someone make a race of bees which will appeal to American beekeepers. Start with the color of the Italian if that is necessary, add the prolificness and capping character of the Carniolans, and put in the hardiness and tongue length of the Caucasian.



Pioneers in beekeeping—Mr. John M. Davis, Spring Hill, Tennessee, and Mr. C. P. Dadant, Hamilton, Illinois

MAKING BEEKEEPING A SUCCESS

(Herbert J. Link, LaPorte, Ind.)

The United States has been a nation of progress. No matter what line of industry you may look upon, it has been of some great advancement. Even Henry Ford had to submit to a change in his automobile industry. The bee industry has been no exception to this rule. It has marched right along in the great parade of progress. Inventions of various kinds, such as foundation, which has put the control of the brood nest at the disposal of the beekeeper and developed the movable frame hive, has made the beekeeping industry one of outstanding progress. With the development of the movable frame hive and proper manipulation honey production was greatly increased. The honey extractor, although a very crude affair at first, was where the evolution of the industry took place. From a crude coffee mill affair it changed into the two-frame reversible machine. By the aid of good beekeeping papers, such as *Gleanings* and the *American Bee Journal*, the progressive beekeepers received valuable information from various sources in our great country which developed honey production to such a great extent that the smaller machines soon became obsolete. Our progressive industries in the beekeeping supply field soon realized that they had to keep pace with the rapid increase in honey production and machines to meet this condition had to be put on the market. The following machines were offered to the American beekeeper: electric-driven steam heated uncapping knives, 8 to 45 frame honey extractors and pumps to convey the honey to tanks, which have made mass production a possibility.

I have stated that mass production is now taking place in the bee industry. Mass production has taken place in nearly every industry, but most industries have a fixed price of production, knowing what their cost of production is and their sales cost. But the beekeepers do not know their cost of production and are offering on the American market a product with an unknown cost. Unfortunately we have more fools in the bee industry than any one industry I know of. As we have no fixed market on which we can regulate our price and most of the honey is being offered on the market at cost or below, under selling and knocking the other man's product are common faults of the beekeeper. Always remember that the knocking of the other man's product creates a doubting public, advertises the competitor and hurts only you. What the honey industry needs is boosters—not knockers. With its wonderful qualities and the

great campaign against artificial sweets, a man with ordinary sales ability should be able to sell his crop. Do away with dirty knocking sales tactics. If you cannot sell your crop at a fair price and you must resort to knocking and price cutting, you had better quit the business. Advertise by giving to church banquets and get your name into the mouth of the public as a honey producer. You have heard various sales talks given, yet it is entirely up to you as to how to sell the crop.

This year has been an exception as to a large crop. If you did not get a crop this year, there has been something wrong in your manipulation, due to lack of knowledge of bee behavior and manipulation. Success depends on the following:

1. Good Queen.
2. Swarm Control and Manipulation.
3. Proper Equipment.
4. Good Salesmanship.
5. Proper Wintering.

I would like to talk on each of these subjects but space will not permit. Good queens will produce a strong force of bees which will swarm if not properly manipulated. By various methods you can control this if you have ample equipment. Having controlled swarming and properly manipulated your bees, you cannot fail to get a crop, all other things being equal. After you have secured this crop the marketing problem will come up before you. This, as I stated, is left to the individual.

More honey crops are lost by improper wintering than from any other known cause. The condition and the keeping them as near normal during the winter months is the depending factor to determine the producing power of the colony the next season. To winter successfully bees must have not less than 35 pounds of good honey, a good queen to give plenty of bees of the proper age and proper ventilation so that moisture will not condense on combs and on the lower side of inner covers. More bees are lost by condensation of moisture than the actual cold weather. Winter protection keeps the temperature in the hives even, thus keeping the cluster intact and not causing the bees to become active and consume honey at the rise and fall of the temperature. Either the raising or lowering of the temperature causes the colony to become active and fill their stomachs with honey, and if there is no chance for a cleansing flight, dysentery and unrest set in. A colony will winter even if it is not packed, but it will not build up in the spring the way it should if it is not protected. The real value of winter protection comes in the spring when the temperature ranges from 70° to 25° F. at night. When brood rearing comes on in the early spring bees cannot adjust themselves to brood protection if not protected. If the temperature should fall below freezing, the cluster will form, leaving the brood to be chilled and causing the colony to dwindle, whereas protected colonies will continue to build up and get bees ready

for the clover flow. Protected colonies will give the beekeeper a chance to get two crops, while the unprotected bees are not ready to put in the clover crop and only will be strong enough for a fall crop. So you can see the value of winter protection.

At the present time we do not need more beekeepers, but co-operation among those who are now engaged in the bee industry.

CUTTING THE COST OF PRODUCTION

(Geo. S. Demuth, Medina, Ohio)

The present difficult honey market situation has resulted in beekeepers giving the question of marketing great prominence. The chief subject of discussion today, when two or more beekeepers meet is that of how to secure better prices and a more ready market for honey. So important has this subject grown under the stress of low prices and slow sales that some are advising that the discussion of methods concerning the production end of the honey business be prohibited at bee meetings and in the bee journals. It is explained that beekeepers already know too much about production methods. The large amounts of honey now seeking a market at distressingly low prices are pointed out as evidence that this is true.

However, profits are affected not only by the selling price, but also by the cost of producing the article sold. If, by better management, or other means the cost of producing the crop of honey can be reduced one cent per pound, the profit is increased as much as though the selling price had been increased by one cent per pound.

Beekeeping is not the only industry that is passing through an era of keen competition and diminishing profits. Many other industries are experiencing even greater difficulties than beekeeping. Many industrial concerns have been able to survive through recent years only by drastic readjustments in production to lower costs per unit of the product. Beekeeping as an industry has scarcely started on a program of cutting costs of production in the sense that this is being done in other industries. Not many industrial concerns would be turning their wheels today if no more attention were paid to lowering production costs than is done in beekeeping. There remains plenty of room for lowering production costs of honey and under the present difficult marketing conditions this affords the most readily available relief. While everything should be done that is at all possible to increase the demand for honey and strengthen prices, beekeepers at this time need to study production methods with a view of lowering costs as they have never studied them before. I can not agree, therefore, that beekeepers already know too much about production methods.

Cutting Production Costs by Better Localities

The great interest among beekeepers in the great sweet clover region of the Dakotas and western Minnesota within re-

cent years is a matter of reducing production costs. Many who have moved to this region have done so with the knowledge that they must sell their honey at a lower price than in their old locations on account of the longer freight haul. The thing that appeals is the larger yield which in turn means lower production costs per pound. Likewise those who are encouraging the planting of sweet clover or other nectar bearing plants in their localities are working along a similar line of reducing the cost of production. In some of our best localities, there would no doubt be more profit in producing extracted honey at 5¢ per pound than in other localities at 20¢ per pound. But it is not everyone who is in a position to greatly reduce his cost of production by moving to a better location or by improving his own.

Lowering Costs by Better Management

It is scarcely necessary to mention the many ways of cutting production costs through management that increases the yield per colony. At the close of the honey harvest there are usually several colonies which have far outstripped everything else in the apiary as to yield; many colonies which give a fair average yield and several (sometimes many) whose yield is extremely low through some defect which might have been corrected by different management at the right time. These latter colonies are the ones that greatly reduce the average yield and, therefore, greatly increase the cost per pound of the honey crop. If all or nearly all can be made to produce as well as the best, the cost per pound of the honey crop is greatly decreased. Better queens, better combs, an abundance of food whenever brood rearing is desirable, plenty of room for the expansion of brood rearing when brood rearing is desirable, winter protection, in fact, anything that will result in stronger colonies at the beginning of the honey flow, helps in increasing the yield, and therefore helps in reducing the cost per pound.

Every year thousands upon thousands of colonies give yields far below that which they would have given if some little defect in management had been corrected. The cost of operating these colonies through the year is practically the same as that of operating colonies which may have given double the yield. And it must be remembered that when the yield is cut in half the cost per pound is nearly doubled.

In many cases much expensive equipment is permitted to remain idle or otherwise unproductive after severe winter losses. In such cases, the usual procedure is to make increase during the summer to make up winter losses and fill the idle hive, which results in this equipment being unproductive for an entire year. Colonies that are very weak in the spring are permitted to occupy hives during the summer with the idea that they may build up to sufficient strength for winter, but which do not become productive until the following season. In this way, sometimes a

large percentage of the equipment is unproductive while the expense of maintaining it goes right along. The remedy for this is package bees. By installing packages with queens in hives that are empty in the spring and by adding queenless package bees to the weak colonies there need be no idle equipment. In many cases the cost of production can be greatly reduced in this way.

Elimination of Unproductive Labor

The big item in the cost of producing honey is that of labor. In many cases this item can be greatly reduced. I have seen this item cut down 50% or more without interfering in any way with the yield per colony. In large operations where help is employed, much of the unproductive labor is, of course, eliminated, but in many cases where the owner is doing all the work, there is usually plenty of room to cut down this item without in any way reducing the size of the crop. In my own case, for instance, I have for years operated in the neighborhood of 200 colonies for comb honey by spending only four or five weeks of my own time, plus a little hired help, ranging all the way from a few days to 15 or 20. This is done by carefully planning in advance so that the bees require no attention during the greater portion of the year, then giving intensive care during the honey flow. My location is one having a rather short major honey flow seldom lasting more than six or eight weeks.

Large Reserve of Stores Saves Labor

An important factor in reducing the item of labor in honey production is that of supplying each colony with a large reserve of honey so that feeding is never necessary. I winter my colonies in two stories, the upper story being the food chamber which is nearly if not quite full of honey in the fall. This makes it possible most seasons to postpone the first visit until the beginning of the main honey flow, usually about the first of June. The exceptions to this are those seasons when a third story may be needed previous to the beginning of the main honey flow.

On the first visit, I find and clip the queens, reduce the hives to one story placing most of the brood in the hive body left, then put two comb honey supers on all the strongest colonies and one on any that may not be quite up to full strength. If the extra hive bodies are nearly full of early-gathered honey they are set on a bottom-board by the side of the original colony and supplied with a cover, thus making nuclei with a large supply of honey. These nuclei are given ripe queen cells as soon as this can be done. If the extra hive bodies contain only a little honey, they are tiered up on colonies not to be used for comb honey production in order to have them filled during the honey flow.

The problem during the next few weeks is that of fighting swarming, adding supers and taking off finished honey. In men-

tioning that most of the year's work is crowded into a month of six weeks' time, it is only fair to mention that during the swarming season the working day is sometimes sixteen hours long. This is where factory methods do not apply.

While this is not a discussion of swarm control, I desire to mention in passing the great advantage in saving labor of having a supply of young laying queens on hand during the swarming season. By taking a little time to rear these queens and establish nuclei at the beginning of the main honey flow, much time and trouble can be saved later.

Greatest Labor Saving Manipulation

At the close of the main honey flow or preferably just before it closes, the comb honey supers are taken off and each colony is given an upper story or food chamber filled with honey. These are taken from the piles tiered up on colonies not used for comb honey production, or they are the food chambers which were set beside the original colonies and given ripe queen cells at the beginning of the main honey flow. I like to have a large number of the latter which at this time contain small patches of brood, the young queens being cramped for room on account of the hive being jammed full of honey. If not many of these were set aside at the time of reducing the hives to one story, the piles are torn down as soon as the food chambers are filled with honey and nuclei are formed in them. This gives a good supply of young queens.

Thus in a single manipulation when the food chamber is given, (1) the colonies are supplied with an abundance of stores for the usual fall dearth in my locality, which goes a long way toward securing sufficient brood rearing in late August and September to form good winter colonies; (2) the colonies are fed for winter; (3) the spring feeding is done, making it unnecessary to open the hives the next April or May to find out if any are short of stores; (4) room for the extensive brood rearing period of May is supplied, and (5) the colonies are requeened with young queens reared under best conditions in those cases in which the food chamber is used as a nucleus. It is better to find and kill the old queen before uniting but in my experience about 90% are requeened by this method without killing her. In other words, this single manipulation takes care of all the apiary work, except that of packing for winter and unpacking the following spring, between the time of the close of the main honey flow and the opening of the main honey flow the next year. Thus a few hours in each apiary makes it unnecessary to give the colonies further attention except that of packing and unpacking for a period of about ten months in this locality.

In addition to the elimination of a large amount of labor connected with feeding or examining colonies to learn if any are short of stores, the food chamber plan, in my experience, results

in much stronger colonies on the average at the beginning of the main honey flow on account of the effect of the reserve supply of honey upon brood rearing during the two important brood-rearing periods, namely, that of the six or eight weeks preceeding the cessation of broodrearing in the fall and the period of extensive spring broodrearing just previous to the main honey flow when the harvest hands are reared. In other words, the food chamber acts as an automatic feeder, feeding colonies when feeding is needed without any attention on the part of the bee-keeper, and by making sure that the food is always present when needed, the colonies are usually in so much better condition the following spring that the food chambers are, in some localities, usually refilled free of charge. In addition to this, the brood in the lower story extends to the top bars when the upper story is taken off and comb honey supers given. Comb honey producers know how important it is to have the brood chamber filled with brood to the top bars at the beginning of the main honey flow. This item alone, of being able to take away the rim of honey above the brood is of great value, especially in comb honey production since it brings about better work in the supers and greatly reduces the tendency to swarm.

Reducing Cost of Winter Packing

The cost of winter packing can be greatly reduced by using a light grade of tarred paper (slater's felt) for holding the packing in place instead of more expensive winter cases. Last fall, I put into use a little trick in packing bees in tarred paper that is quite a labor saver. It is that of cementing the ends of the sheet of tarred paper, which goes around the hive or group of hives, by means, of hot asphalt, such as is used in roofing. After folding the upper edges down, a piece of tarred paper is cemented on top with the same material. However, a much cheaper way to provide winter protection is that of the double-walled hive with packing built in, provided the apiaries are permanently located and the initial investment does not stand in the way.

SALES BUILDERS

(R. H. Kelty, East Lansing, Mich.)

Under the present system of merchandising foodstuffs, sales are inseparably associated with advertising in some form. When we ponder the vast sums of money spent for advertising by not only the leading manufacturers of foods but by the chain stores and even the individual retail merchants,—and the sum total spent by this group would surprise us all, as casual observers we are likely to think that a lot of this money and effort is wasted. But, in the case of the chain stores, for instance, big advertising campaigns have helped them climb from their position of a few years ago when they sold one-fifth of the nation's groceries, to that of the present, when they sell about three-fifths.

Advertising helped the largest manufacture of breakfast foods to double the size of the package and at the same time cut the price in half. Two young men bought a candy called Crane's Life Saver for \$2,900 and seven years later realized a half million dollars a year profit. Advertising has brought several candy bars out of obscurity and limited sales into popular demand and a distribution of many million per month. In fact, advertising has become such a constructive force in business that it regulates our habits, customs and mode of living.

However, advertising alone does not make a business. The product which is being advertised must be good, worth the money, and preferably of universal usefulness, appeal and consumption. Such a product is honey. Nature's only ready-to-eat liquid sweet, Simon pure, healthful, wholesome, delicious, appealing alike to children and grown-ups, to rich and poor, from Maine to Florida and from California to Alaska, few products possess the sales appeal and advertising possibilities of honey.

Now, before it is feasible to engage in an extensive advertising campaign it is necessary to have control over certain factors: (1) a continuous supply of standard quality goods, identified by a brand which will enable the public to distinguish them. (2) Sufficient margin between the cost of production and the popular retail price to pay the cost of distribution and sales, together with advertising, and have a profit. (3) Some means of distribution to efficiently supply the demand created by the advertising and sales organizations.

When we check up these requirements against our present system of honey marketing, the conclusions are likely to be: (1) There are few widely distributed brands of standard quality honey. (2) Honey is sold on too small a margin. (3) Many dis-

tributors are at present unwilling to handle honey because of this small margin.

And since there is no indication of immediate relief from this situation, through cooperative effort of either beekeepers or honey bottlers, it remains for every individual beekeeper to do his utmost to advertise honey locally. This does not necessarily mean that the beekeeper should spend a large amount of money in newspaper display advertising. Big business advertising accounts often represent an expenditure of only 2% to 6% of the year's business done. A California Fruit organization, for instance, which has probably been the greatest single factor in popularizing California Citrus fruits, has, since 1897, spent less than 3% of its sales on advertising. And 3% of the average beekeeper's honey crop would not put across a very pretentious newspaper advertising campaign. Certain forms of newspaper advertising help honey sales, it is true, but there are other means of advertising honey locally which are possibly more lastingly beneficial.

In any attempt to build up a trade locally for honey, it is of primary importance that the beekeeper identify himself creditably in the community. Public opinion is a mighty influence, and when one becomes generally and favorably known as THE beekeeper of the community, "customer acceptance" of that brand of honey is noticeably improved. The home apiary, honey house and the premises should be neat and attractive. To carry the idea still further, some beekeepers dress in white work clothes. Aside from creating an impression of sanitation, the white clothes are good for identification. A very successful beekeeper in northern Indiana follows the policy just mentioned and in addition, extends a standing invitation to the public to visit his apiaries or honey house at any time.

Those who have neat apiaries lose a splendid opportunity for advertising if they do not erect an attractive sign in the apiary in duplication of their label. A neat apiary of well-painted hives is a thing of beauty and, associated with the beekeeper's label, improves "customer acceptance" for the products thereof.

Those who sell to grocers should have their label prominently displayed on the delivery truck. The name is not enough. Memory is largely association and observers are far more likely to recall your honey on the grocer's shelf if they see a large duplicate of your label on the side of the truck instead of a simple "John Jones, Beekeeper." Furthermore, attractive delivery trucks make a more favorable impression on the grocer himself.

In almost every section where honey production is profitable, some beekeeper is making an outstanding success of honey marketing, using some form of inexpensive advertising appeal to reach his customers. For instance, one Northern Michigan beekeeper who lives a long way from any city, and in a "producing" section, too, has found a way to sell his whole crop at top price,



Apiary, honey house, and roadside selling stand of E. A. Meineke,
Arlington Heights, Illinois

from his door. This man travelled the big fair circuits thirty years ago, exhibiting prize-winning honey displays, and he has a good idea of what attracts the public eye. So he constructed an odd-styled, Japanese pergoda style of honey display case that will hold about five hundred pounds of comb and extracted honey. Then he enclosed two glass observation hives, in an attractive rose-arbor. His unique honey-for-sale sign is suspended in air, letter by letter, without visible supports. His wife specializes in flowers, and with a well-kept lawn for a background, such a pleasing effect is created that few of the thousands of tourists who travel this main trunk-line highway, pass by without noticing, and many stop to buy. Each customer's name is card-indexed, and when the snow is deep in winter, each customer is mailed a postcard quoting 5lb. pails by parcels post. Such is the sales effort of Geo. Kirkpatrick, Kalkaska, Michigan.

Another beekeeper living in a city of 20,000 population, uses an entirely different form of appeal. He donates a half dozen or more 8-ounce jars, neatly labelled, of his best honey, to all church, lodge or commercial men's banquets, asking only that the honey be served from the jars. This is his main advertising effort, yet his label dominates the market of that city.

In another city a beekeeper has gained much publicity writing news articles on bees and honey with an occasional feature story during fruit bloom, extracting or swarming season. Possibly the fact that this city is dubbed the "Food City" has some bearing on this beekeeper's success. Since he occasionally buys space in the classified columns of the paper, he obtained permission to use his name and city address at the end of his articles. He supports this publicity with attractive honey displays, personally attended, in bank lobbies and leading grocery stores. Telephoned orders form a large portion of his sales.

And then there is the case of another beekeeper who decided to try to develop his local market with display ads in his local paper, having a circulation of 35,000. He intended to run a small ad of about four inches, costing about \$4.00 per insertion, on Friday's "Market Basket" page, weekly. But an authority on display advertising said "No," that it would be better to use 20 or 30 column-inches of space at intervals. The theory was that the small ad would be buried by the large displays carried by the leading retail grocers in competition with the still larger ads used by the A. & P., Kroger, Thomas and other chains. But how many individual beekeepers can afford to spend \$25 for a single ad, which must be frequently repeated to keep before the public eye? This beekeeper hit upon the idea of cooperating with the grocers who sold his honey by offering to pay for, say one column-inch of space in that grocer's regular ad, to be given to honey. This was much less expensive, and gained favor among the live grocers. And then, to stimulate action, which is the main purpose of all advertising, these grocers were furnished, free,

individual samples of honey in wax-paper, labelled, sample cups, at an expense of about 11½ cents per sample to the beekeeper, in quantities of 25, 50, 100 or even 500, and in one case, in a store through whose doors pass an average of 4,500 to 5,000 customers on Saturday, 1,000 samples were given. These samples were delivered with orders, to regular customers. They stimulated honey sales, directly, and, although rather expensive, the beekeeper felt that it was better to spend \$50 for enough samples to give several thousand families a taste of honey, than to spend a like amount for advertisements which may or may not be read, and which certainly do not put honey in the prospect's mouth—a most forceful incentive to buy honey.

We should give full credit to the indirect, good will advertising for honey which is so generously supplied by the Kellogg Co., Battle Creek, Michigan, in their hundreds of thousands of newspaper display ads, on the cartons of cereals and on their beautiful window displays. The accumulative benefit, educational and sales-stimulative, is impossible of calculation. The history of other well-organized advertising campaigns indicates that this effort will result in many present honey abstainers becoming HABITUAL honey consumers, which will both increase and stabilize the demand for honey as time goes on.

CONSUMING NATURE'S OWN SWEET

(Mrs. Ida H. Cornforth, Kellogg Company, Battle Creek, Mich.)

Bee's honey is one of the oldest known foods. It has been used from time immemorial as a food and as a medicine.

The sacred books of India, China, Persia and Egypt speak of honey in terms of highest praise. The Old and New Testaments, the Koran and the Scandinavian Sagas tell of its invigorating and medicinal properties.

The Greek athletes ate honey before entering the arena and their Gods were said to feed on ambrosia, a mixture of milk and honey. The Nordic God Oden feasted on mead made from honey, and their heroes were promised it as their exclusive beverage in the Valhalla. The Greeks and Egyptians fed their children milk and honey and it is still used in Iceland as an infant food and hypnotic. In Palestine, the land of milk and honey, it was believed to strengthen the understanding and to this day the Bedouin and Fellah children get their daily portion of buttermilk and honey. Plutarch calls it the heavenly saliva. Other Greek and Roman philosophers attribute their long life to the daily use of honey. One of Titian's pictures shows the infant Jesus holding a bee in his hand. Homer, Ovid and Virgil wrote immortal verse celebrating honey and our modern poets sing of "honey lips." The old negro croons, "My little Honey," and since the time that Eros dipped his arrow in honey, the happiest time in a person's life has been rightly called the honeymoon.

Hypocrates as well as Arabian physicians prescribed honey as a laxative and expectorant, and it is still used in folk medicine as a cure for a multitude of ailments. Many of us will remember that our grandmothers used to give us flaxseed and honey or lemon juice and honey for a cold. The curative virtues were supposed to be equally divided between the flaxseed or lemon juice and the honey. It is hard to think of a medicine easier to take. Dr. G. N. W. Thomas of Edinburgh, Scotland, states that honey is a great aid in the treatment of heart disease. He says that in seven cases of malnutrition with heart weakness he has found honey to have had a marked effect in reviving the heart action and in keeping the patient alive. In a recent case of pneumonia the patient consumed two pounds of honey during the illness. There was an early crisis with no subsequent rise of temperature and an exceptionally good pulse. Instead of depending on milk and beef extracts as is done in so many cases of fever when the storage of sugar in the body is rapidly being used up, he suggests that honey be given for general physical repair and above all for heart failure.

Formerly honey was the principal sweet. It was one of the items sent as proprietary offering by Jacob to his unrecognized son, the chief ruler of Egypt, 3,000 years before the first sugar refinery was built.

We have not been wise in giving up such a natural wholesome food as a staple article of diet. Perhaps the reason for this has been that sugar is a little cheaper and easier to get. But honey is coming back into its own.

It has been estimated that as many as 62,000 clover blossoms and 3,700,000 trips for the bees are required to make a pound of honey. Honey from flowers that give a light colored nectar, not too strongly perfumed, is ordinarily considered of the highest commercial value. In the diet kitchen of the Home Economics Department of the Kellogg Company, we have used only the dark honey in testing out recipes. This has proved very satisfactory.

As everyone knows, honey is a sweet liquid collected by the domestic bees from the nectaries of various flowers, being first stored in the bee's crop where it undergoes predigestion and later stored in the wax comb where it undergoes further inversion and concentration. Ripe honey is a syrupy liquid with a characteristic color and flavor. Its consistency, color and flavor varies with age, place of production and the flowers from which it is collected. The nectars from orange, basswood, clover and linden are said to give the best honey.

Honey is acid in reaction, dissolves readily in water, less readily in alcohol. The chemical composition of honey varies exceedingly, no two analyses being exactly alike. The water content differs according to the amount of rainfall in the locality where it is produced and the amount of moisture present where it is stored. We can safely say that it contains as a rule water, levulose, dextrose, mineral salts, free acids, volatile oils and undetermined substances. It has been reported that a small amount of lecthin is found in honey. This substance is thought to be an important brain food. The vitamine content of honey is a disputed fact.

In a comparison of sugar and honey, we find that they have about the same caloric value. Sugar is 100% sucrose, which must be broken down in the process of digestion into dextrose and levulose before it can enter the blood. In honey this breaking down takes place in the crop of the bee where the ferments of the head and thoracic glands begin the predigestion and it is finished in the hive. This predigestion makes honey easily assimilated in the blood. The levulose in honey seems to have a peculiar affinity for the body cells, thus it is rarely, if ever, found in the urine of diabetic patients. A teaspoon of honey to a glass of water is almost as quickly absorbed as alcohol and its effect is more lasting.

Sugar contains no protein. The protein in honey is derived from the pollen grains of the plants and has been estimated from 1% to 5%. That it is capable of sustaining life and building tissue may be inferred from the fact that the bees get no other protein food. The special honey set aside for the Queen bee, known as royal jelly, is very rich in pollen grains and her extra size and extraordinary vitality could be ascribed as directly due to this food.

Sugar in itself is not a bad food. On the contrary it is a good energy food needed in moderation by all of us, but to eat it in excess as is the tendency with Americans is not a good habit and it needs correcting. Honey is a splendid aid in the correction.

In his article on "Bee's Honey in Substitute Infant Feeding," which is found in the New York Medical Journal and Record, August 2, 1922, Dr. Paul Luttenger writes that the protein content of honey not only adds to the nutritive value of honey, but in cases where infants cannot digest casein or other milk proteins it may become the only available source of protein food during a critical period. He has used honey in all cases of diarrhea in the proportion of one teaspoon of honey to eight ounces of barley water. He has found that due to the rapid absorption of honey, it is prevented from undergoing alcoholic fermentation and infants fed on honey rarely show signs of gas formation. The mineral salts contained in honey, although in small amounts, are of great value to infants. This is especially true of iron which human as well as cow's milk contains in exceedingly small amounts. Honey complements this deficiency. In the 419 cases in which he used honey he observed that fresh honey, especially virgin honey directly obtained from the honey comb, had a decided laxative action which it lost on boiling. Fresh honey seemed to have a pronounced soothing effect on infants. Honey with strong aromas exhibited this action to a greater extent than those that were comparatively odorless. The babies who were fretful before exhibited a remarkable change of temper after being put on honey. The tendency to fall asleep after feeding was greatly increased. Whether this was due to general improvement to lessen gas formation or some hypnotic action, he could not tell. In his own experiments he found vitamins in 82% of the honeys examined. This coupled with the other advantages of honey induced him to discard all other sugars in substitute infant feeding and finally he successfully substituted honey for orange juice and cod-liver oil. In feeding of infants it is of the utmost importance for the mother or nurse to be instructed to obtain a pure product, and in case of doubt to use comb honey, which is easily obtained by cutting off the top and allowing the honey to run out by gravity. Dr. Luttenger now uses honey in all his formulas for substitute infant feeding and the results obtained in the 419 cases studied encouraged him to plead for a more general use of honey by the profession. The proportion he

gives is one teaspoonful of honey to an eight-ounce bottle of feeding mixture.

For the past three years the members of the Toronto Central Y. M. C. A. Walkers' Club, the first club of its kind in Canada, have been using honey as a staple article of diet. This was the result of extensive medical research work on diet and athletic endurance in which was involved estimations of blood sugar before and after competitive walks. The type of activity in which these men are engaged demands great stamina and endurance and the food problem is one that demands close attention. According to the standardized medical tests, honey was found to have the following advantages: It is non-irritating to the delicate membranes of the digestive apparatus. It is assimilated quickly and easily. It quickly furnishes the demand for energy. It enables the athlete to recuperate rapidly from severe exertion. The men using it showed less evidence of fatigue. The use of honey spares the kidneys, lessening tissue destruction. This group of athletes has been very successful in the past and are in the throes of extensive training for the 10½ mile walking race which takes place annually in New York, Thanksgiving Day.

We all crave sweets. This craving is more than a cultivated liking for them. Sweets provide certain food elements necessary for growing children. Youngsters are always asking for sweets. Honey is one answer to this demand. Honey sandwiches will delight the small boy or girl after school or may be sent to school with them in the lunch basket. Honey may be served on cereals. It may be used to sweeten grapefruit, giving it a pleasing appeal to the palate. It is delicious to use as a sweetener for fruit cocktail.

In the diet kitchen of the Home Economics Department of the Kellogg Company are tested out many honey recipes. Last summer while I was testing some recipes we had a visitor to the plant, a Miss Flint of New York. She has an experiment kitchen with a tearoom in connection. I served her some honey All-Bran cookies I had just made. She liked them so well that she asked for the recipe. Not long ago we received a letter from her saying that she was serving All-Bran cookies in her tearoom and they were going exceedingly well. At the Beekeepers' Convention in Omaha I talked with several of the ladies who were attending the convention. Nearly all of them had a favorite recipe for using honey. I suggested that they send them on to our Home Economics Department and let us send them out with the thousands of recipes that are sent out upon request. May I make the same suggestion to you? One gentleman at the convention told me he always put one of the Kellogg pamphlets with each jar of honey sold. We have some of the pamphlets and literature from the Home Economics Department available for every beekeeper who will only send us a request for them.

In the end it is not too much to hope that we all reach that promised land flowing in milk and honey.

TEN YEARS EXPERIENCE IN BEE DISEASE WORK

(C. D. Adams, Chief Apiary Inspector, Wisconsin)

During the last ten years the Wisconsin State Department of Agriculture has been attempting to eradicate American foul-brood by means of quarantine methods and area clean up work. Until last June this work was under the very efficient direction of Dr. S. B. Fracker, now of the U. S. Department of Agriculture. His successor is E. L. Chambers.

Quite naturally we have had to unlearn some things and we have learned others. We have made many mistakes—some of them more than once. In this time the policies of the Department have not been materially changed but its methods have. It may be of interest to the beekeepers of Illinois to review some of the methods we have abandoned and some new ones that we have adopted.

One of the policies adopted by the Department of Agriculture was the stopping of the sale or movement of all bees and used bee supplies within or from without the state without a permit. Practically no changes have been made in the administration of this law since it went into effect many years ago. It has from the start been the intention of those in charge of the work to greatly modify this rule in a section of the state as soon as that section has been definitely freed of disease. We regret to say that no considerable part of the state has fulfilled the requirements. While a very large part of the northern half of the state, is and has been apparently free of disease, lack of sufficient inspection and knowledge of conditions in many counties prevents the letting down of the bars. In the southern part of the state a few counties have been apparently freed of disease but not for long enough time to satisfy us.

The next policy of the Department adopted was the "area clean up" method. It was soon found that the disease was prevalent over such a large part of the state that the attempt to cover the whole territory at once would be practically useless with our relatively small appropriation. So it was decided to begin in counties where a local association requested it and agreed to cooperate with us.

This worked very well for a time but before long some method of holding down the number of counties was found desirable. Advantage was taken of a law that allowed a county to appropriate money for the control of insects and diseases of animals and plants. So it was announced that when a county appropriated a sum of money for the control of bee diseases the

Department would use twice the amount appropriated by the county. This worked very well for a time but now so many counties have appropriated funds ranging from \$100 to \$500 that the state appropriation is insufficient to meet them. So some counties are put on the waiting list. It is quite probable that before long the Department will announce that the state will meet an appropriation by a county by an equal amount of money instead of double the amount.

By far the most important change of methods adopted by the Department was the change from the shaking treatment for the control of disease to that of the destruction of diseased colonies and in exceptional cases the destruction of the diseased apiary. Ten years ago the so-called shaking treatment for the control of American foulbrood was so universally accepted that no other method was considered by those in charge of the work. But after a very few years of experience doubts as to its effectiveness began to assail the minds of not only the inspectors but the beekeepers themselves began to ask why diseased colonies were not destroyed. After three or four years experience in the work Mr. H. L. McMurry, then with our Department, challenged anybody to show a single apiary that had been definitely freed of American foulbrood by the shaking treatment. When instances of apparent success of the treatment were brought to his attention his reply was that granting that the yard was then free of disease there was insufficient evidence that the disease was not Sac brood or European foulbrood to begin with.

Few of us have ever gone as far as Mr. McMurry but I have yet to find a single inspector of three years actual experience in state work either in Wisconsin or any other state that will advocate the treatment of disease in preference to destruction.

So our Department gradually changed its methods until about three years ago every new county coming under the area clean up did so with the understanding that all diseased colonies be destroyed when found. While conditions sometimes make it impractical to carry out this rule at once we are firmly convinced that it is absolutely the most economical thing from the beekeeper's standpoint. With the evidence now in our hands we believe we could establish this fact in almost any court.

With us the question has not been "shall we destroy," but "how shall we destroy?" We have good ways and bad ways to destroy diseased colonies. About three years ago the Chief Apiary Inspector in one of our southern states wrote an article for the Beekeepers Item in which he said it was their practice to pour kerosene over the hive where it stood and apply a match. I know of no better way of infecting a whole yard under northern conditions. You simply cannot burn honey in an open fire. When I met my friend face to face and challenged him to justify his method you may imagine my surprise when he sprung the old

alibi—"Locality." And what is more he convinced me that there was something to it. He says that in the south at the time of their regular inspection the bees are turning every drop of honey into brood as fast as it is gathered and there is absolutely no honey to run out on the ground and spread the disease to every colony within bee flight. So it may work in the south but in the north the only safe and convenient way is to dig a fair sized hole and burn the contents of the hive in this, filling up the hole before the coals of fire die out.

But before burning a colony we must kill it, and there we have changed our methods from time to time. Originally we used surphur but it was very slow and an altogether disagreeable job. Then two of our inspectors, independently of each other, began using gasoline. This is always available and so satisfactory that before long every inspector was using it and I doubt if we ever entirely discard it. A half pint of gasoline put in a colony in any way you may see fit will kill or disable every bee within three minutes. It does not have to touch the bees. It is the fumes that do the work in a fraction of the time that it takes the strongest sulphur fumes. It is not disagreeable to the operator and is not dangerous when ordinary precautions are taken.

Most of us at one time or another have killed bees with carbon disulphide. Under favorable conditions it is very satisfactory but is rather expensive, more dangerous than gasoline and often impossible to get.

Just when we had settled down to the use of gasoline as our standard way of killing bees, along came C. L. Corkins of Wyoming, in Gleanings, telling us of the new insecticide—calcium cyanide. Every one of our regular inspectors used it more or less the past season. All praise its effectiveness but some consider it too dangerous to use in all cases. When a tablespoonful of this poison is inserted or blown in at the entrance of a hive or dumped in on top of the frames there can be no question about the effect. Within 60 seconds every bee is absolutely dead. In killing colonies in the sides of outbuildings it is far ahead of anything we have used in the past. But for killing bees in homes we consider it too dangerous to be used.

Still another interesting phase of our clean up work is the disposition of infected combs. The introduction a few years ago of the disinfection of combs with Hutzelman's solution and later of the formalin treatment was welcomed by us and has been a great help but was not an unmixed blessing.

It had always been a stumbling block with us when it came to requiring the destruction or melting up of all combs suspected of being infected. That was and still is the reason that in every community when we have all but cleaned up, the last yard to be free of disease is not the yard of a poor or indifferent beekeeper. It was and is the apiary of the commercial beekeeper. It did not require an inspector with a calloused heart to condemn for destruction the few crooked combs of the haphazard beekeeper but

when a good beekeeper has thousands of first-class brood and super combs a few of which were suspected of being infected, the most hard-hearted of us felt like dodging the issue when the question of destruction of all combs came up.

But all this was changed when it was possible to disinfect the combs at a reasonable cost. One of our most enterprising local associations collected funds and bought a quiet complete disinfecting outfit. But when they had it ready they found their funds all spent and no disinfectant on hand. So our Department was appealed to and the upshot was that we bought the outfit with the understanding that the money be invested in Hutzelman's solution. This outfit was mounted on a four wheel trailer and moved from yard to yard. It soon became evident that a certain amount of supervision was necessary. Very few beekeepers are competent to follow the simple directions necessary for success. So the local inspector was held responsible for the work.

When there was no longer a demand for use of the equipment in that county it was taken to another county where it was put in the hands of the secretary of the local association. This man proved to be unusually efficient and still more fortunately he appears to like the work, which is very unusual. He has disinfected combs for every beekeeper in the county who has requested it and at a price satisfactory to all. This price has varied from 5 to 7 cents a comb.

Up to the present time no evidence has been presented to prove that combs disinfected in this outfit carried the disease to colonies in which they were afterward used. In not more than two yards did disease appear after the use of the disinfected combs but in both cases evidence of careless work with other equipment appeared to solve the case. Where the solution has been used by the beekeeper without a certain amount of supervision the result has not been very satisfactory on the whole. The beekeeper appears to be a natural born experimenter and all kinds of short cuts and supposed improvements have been tried, with disastrous results in practically every case. With this in mind we seldom sanction the use of the disinfectant where the number of combs do not justify our supervision of the work.

As we look back over our 10 years of bee disease work we realize that the problem is a greater one and more complicated than anyone can possibly realize who has not gone through it.

A whole book might be written on the subject of interesting characters we have had to deal with. No one inspector is qualified to deal with all beekeepers. Some succeed well with one type and fail with other types but we all pretty well agree on what is the easiest type and which is the most unsatisfactory. The man who agrees to everything we say about what should be done, fully intending to do it, but procrastinates from day to day and even year to year is the most difficult to deal with. But the man who tells all his neighbors what he is going to say and do to the

inspector when he comes and attempts to make good when he does come is the kind most of us enjoy most. He is working at a greater disadvantage than he realized and when he has to back down on one or two of his stands, all of his objections fall like a house built of cards. In a large majority of cases he becomes the best friend of the inspector and is a great help in getting his slovenly neighbors to clean up. It would be a great disappointment to most of us if we did not find one or two of this type in each county, but in this we are not disappointed.

CHARLES DADANT'S INFLUENCE ON AMERICAN BEEKEEPING

(Kent L. Pellett, Ames, Iowa)

(Read at Iowa State Beekeepers' Convention, 1927. Reprinted by courtesy of F. B. Paddock, Secretary).

In the years just prior to the American Civil War there was a readjustment of business conditions in France, and many men were forced out of business. Charles Dadant was one of the victims, but his reverses were not a true misfortune, either for him or for the world, as they drove him into the very life which he had always wanted to live, and to world-wide leadership among the men of his craft. When he had been a small boy he had had an intense love for outdoor things, especially bees, and he had enjoyed helping the village priest in his apiary, and spending hours in his grandfather's orchard. During the years he had spent in the mercantile business in Langres, this desire for country life and the out-of-doors persisted.

So, when he failed in business, with visions of fine vineyards and booming colonies of bees, he took his family from his native country to a brush farm on the banks of the Mississippi River. The vineyards did not prove to be very profitable, as the winters of Illinois were too rigorous for the best wine-making varieties of grapes, but his long cherished dream of an apiary finally did come true.

It was an humble beginning—two box hives given to Charles Dadant by the neighbor who had induced him to come to America. But Charles Dadant felt its possibilities, as he told his wife that the bees would provide the livelihood for the Dadant family.

In those first years in America, however, there was little in the way of a livelihood. All the energy of the few boxes of bees was going toward making increase. The entire income was from the vegetables which young Camille, (C. P.) then in his early teens, sold on the Keokuk market, and from the blackberries which the Dadants picked in the woods. They could not afford to buy hive lumber, but used old boxes which they found about town, and even tore the partitions and loft floor out of the kitchen lean-to in order to build hives.

Charles Dadant was rapidly becoming acquainted with the new country. He had not known a word of English when he came over, but so determined was he to learn the language, that he spent evenings toiling over the New York Tribune, working out the meanings by the aid of a pocket dictionary. As he wanted to know American beekeeping methods he bought some

bee books, King's book first because it was the cheapest, and the books of Quinby and Langstroth later.

In the sixties America was at the dawn of a new era in farming. New inventions, as the reaper and sewing machine, were to make farming an efficient, large scale business. Also new inventions as Langstroth's movable frame hive, comb foundation, and the honey extractor, were to make beekeeping a business. These new things did away with box hives and pruning and the sulfur pit forever, but people who were in the midst of them could not see their possibilities clearly at first. Of the writers of that period, Langstroth had the best understanding of beekeeping principles. He taught the value of strong stocks and large hives. He realized the ultimate revolution that his hive would make, and at a time when beekeepers thought it wise to prune the hives once a year, he saw the value of saving all comb, declaring that one pound of wax cost the bees twenty pounds of honey. It was this need of saving comb that brought about the invention of the honey extractor and of comb foundation.

Charles Dadant read his bee books and the bee magazines carefully, so that he early acquired an acquaintance with the teachings of the leaders, and he made thorough tests of their methods and of the new inventions in his apiary. He had built a few Debeauvoys hives like those once used in France, but seeing the value of the hanging frames, he made some square framed hives after the pattern recommended by King. After reading Quinby's book and of his honey crops, he decided to make some of the long-framed Quinby hives. He made a large scale comparative test between the Quinby frame and the square, or American frame, and when he started to sell Italian queens, he made a number of the Langstroth hives to satisfy the demand of his customers.

Dadant had a chance to observe the box hive beekeeping of his neighbors. He noticed that the colonies in the large hives prospered from year to year, often returning surpluses, while those in small hives frequently winter-killed and less frequently returned a surplus. He went to a sale once, to buy a cow, and learned that several colonies of bees were to be auctioned off also. He went along the hive row, tapping each hive as he passed. Each hummed as he struck it, until he came to a barn-like structure which sent forth a roar. He decided right then that he must have that colony, and he bought it for seven dollars. The colony paid for itself the first season, and for the cow as well, while the men who had bought the smaller colonies got no returns from them.

Though Quinby had used the eight frame size of hive, from his own experiences, Dadant was inclined to favor larger ones, and he tried many different sizes of the Quinby hives, finally deciding that a hive of eleven frames was best suited to the laying capacity of the queen. Henceforth most of the hives which

he made were these big old Quinbys, though he maintained enough other kinds for experimental purposes.

Dadant bought his first Italian queen in 1867. The Italians proved their superiority over the black bees, so he not only requeened his own apiary, but sent Camille out to offer to Italianize the bees of the neighbors, so that there would be no black drones left to mate with his Italians. Nearly all of the neighbors complied, and there were soon few black bees left in the community.

But Dadant was not satisfied with his strain, and he wanted to import directly from Europe. He tried ordering from Italian beekeepers, but, though there had been a few successful shipments made, he had poor luck. There were no queen breeders in Italy, and the peasants did not understand shipping. In 1872 his chance came to go to Italy himself when Mrs. Tupper, a woman then very prominent in beekeeping affairs, offered to furnish the money if he would make a trip to Italy and bring back a large number of queens. He accepted her offer and spent a large part of the summer procuring queens from the Italian peasants, with the help of Sartori, a dealer in bees. He sailed for home in September, with five hundred Italian queens. But moths, abounding in the warm climate of Italy, had entered the boxes and destroyed almost all of the queens on the way.

However, Dadant did not quit after one trial. He had learned some of the conditions necessary for successful shipping. He wrote to Sartori, ordering more queens of him, and giving him careful instructions for shipping. Sartori sent thirty more queens, being careful to provide plenty of honey in each one of the little boxes, and placing on the outside of each a picture of Saint Ambrose, the patron saint of Italian beekeepers. He prayed feverently for the success of the voyage, but he forgot to add a few precautions to his prayers, and when the bees arrived they were literally drowned in honey, with only two queens in the lot alive. Sartori made one more attempt, and then gave up. He said that it was impossible to succeed.

Dadant then tried other shippers, but most of them did no better. They were superstitious, impractical fellows, who would make only a trial or two. But at last he found Giuseppe Fiorini, a beekeeper and shipper living near Venice who was more successful. Of the sixteen queens in his first shipment to Dadant, eight came through alive. Fiorini was a careful shipper, giving attention to little details. Dadant began to import regularly from him, and they together worked out methods which succeeded so well that some shipments would come through with scarcely a dead bee, and with all the little boxes humming vigorously.

Since the Dadants continued to import for the next fifteen years, on a much larger scale than anybody else in the country, a large percentage of our present day Italian bees are descended from their queens. However, not the only difficulties were in

importing. The sale of the Italians brought endless annoyances. Dadant's dark, leather-colored queens did not always prove popular, as people thought that pure Italians should be of a light golden color, and they often accused him of selling hybrids. Many beekeepers did not introduce their queens properly, and blamed the queens for the failure.

In 1876, A. I. Root brought out his first foundation mill. The Dadants became interested and bought some foundation from him. They saw its value, and since they had a great deal of wax to melt, and considered Root's foundation rather high priced, they bought one of his machines. So the first Dadant foundation factory was established in front of the old log house, with only the branches of a hickory tree and the sky for a roof. Here Charles Dadant experimented with the rendering of beeswax, working out the right technique years before many of his competitors, while Camille and his helpers were toiling over the mills, trying to make them function. From the first they made a good product which found a ready sale, and early became the largest manufacturers of comb foundation.

During the first years after the honey extractor came into use, extracted honey did not sell readily. The methods of putting up the honey for sale were very crude, and people who were used to a dark conglomeration of broken comb and liquid were suspicious of the extracted honey. They often refused to believe that it was not adulterated. To make matters worse, the newspapers and magazines were full of stories of adulterated honey, one prominent paper going so far as to declare that a pound of pure honey could not be found in Chicago. As glucose was cheap and honey was high, there doubtless was much adulteration, but it was grossly exaggerated by the press.

The Dadants educated the people in their community to use candied honey, as insurance that the product was pure, and Charles Dadant urged other beekeepers to do the same to combat adulteration and the false stories about honey.

When Charles Dadant was selling extracted honey in barrel lots to a Chicago wholesale house, he noticed on the shelves of a local grocery store jars of honey from the same concern, selling for just a cent higher per pound than he was selling to them. He was convinced that they were adulterating their honey, and decided that the best remedy for such practices would be a national statute against the adulteration of sweets.

At the convention of the Western Illinois and Eastern Iowa beekeepers in 1878, he proposed that a petition for such a law be drawn up and presented to Congress. As discussion of the subject in the magazines and among the beekeepers themselves had been rather warm, they were ready to take some action. The convention appointed a committee, with Dadant as chairman, to draw up this petition. All the bee magazines, except one, came to the aid of the petition, printing it and circulating it

nationwide among the beekeepers, and several large sugar refiners also gave it their support. Charles Dadant pushed it in the magazines, pointing out the prevalence of glucose in syrups and jellies, its harmful effects due to the use of certain chemicals in refining it, and criticizing the editors and beekeepers who did not give the petition their support. The petition went to Congress in January, 1879, with over ten thousand signatures. There it died in committee. It was not until 1906, several years after Charles Dadant's death, that the pure food law was passed, but he had done his share in starting the movement, against adulteration.

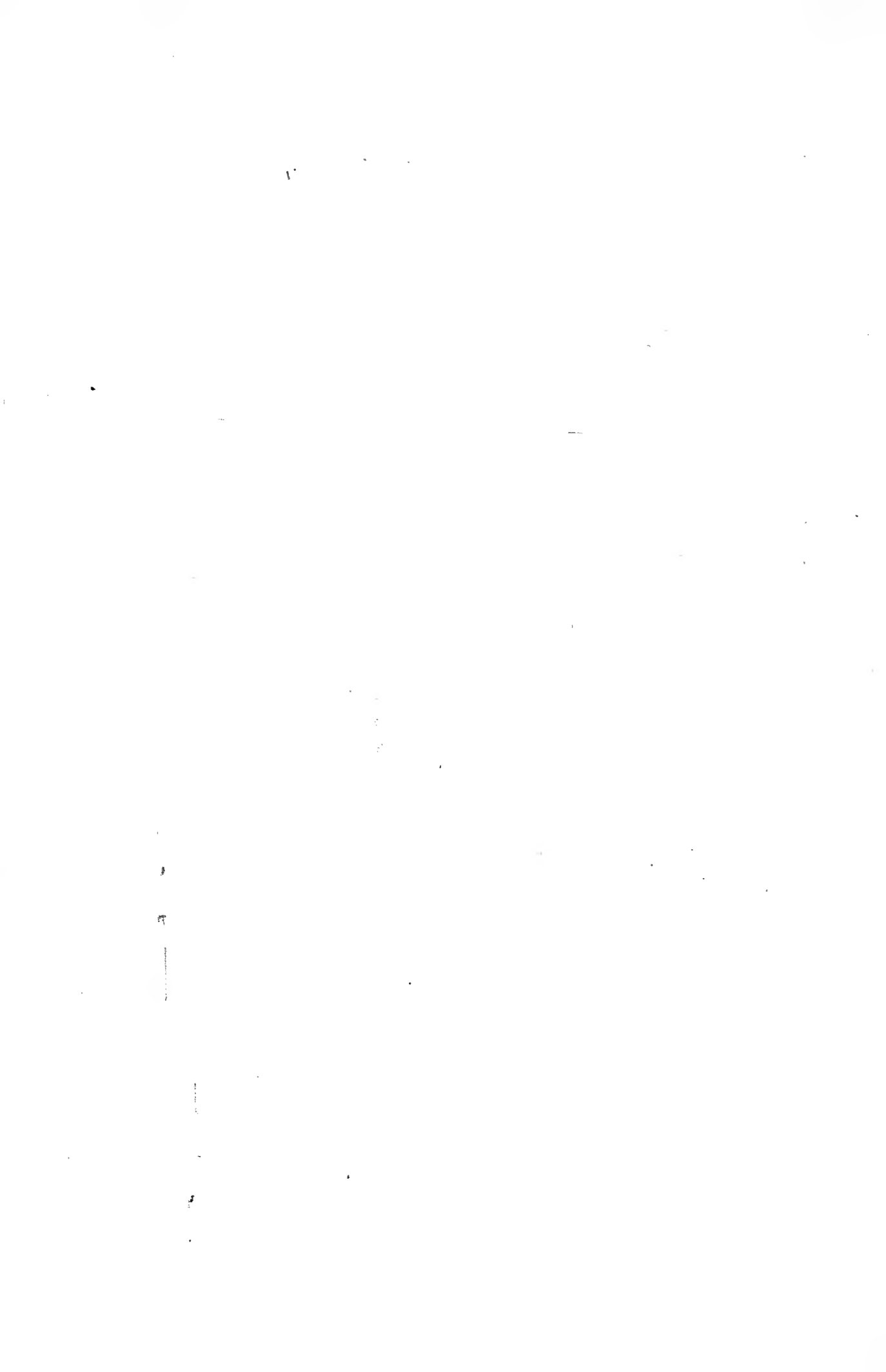
The apiary had grown rapidly reaching the number of several hundred colonies during the eighties—vigorous colonies in the big Quinby hives which produced good honey crops in spite of the poor locality. Camille was now doing most of the active management of the Dadant business, and Charles, who had begun to write for most of the bee magazines in this country and France soon after his arrival, continued his writing until a few years before his death. He discussed nearly all the phases of beekeeping, and engaged in controversies with many of the leading beekeepers of his time. He was a fearless critic, pointing out relentlessly the weaknesses in the theories and arguments of others, and it was very seldom that he was bested in a discussion.

Some of his best and most extensive writings were in defense of his Quinby hives. It was due to his writing for the European magazines that this same hive, now called the Dadant, is in use over a large part of Europe today. Quinby himself had abandoned the hanging-frame hive, deciding that the bee space was a needless waste of room where idle bees might congregate, and for a long time the Dadants were the only large producers in this country using the old Quinby hive.

The invention of comb foundation and the resulting production of comb honey brought about the fad for small hives and contraction of the brood nest. During the eighties the shallow-framed Langstroth hive came into general use, reduced in most cases to eight frames. The theory of contraction was that a small hive did not require so much feed during winter, and the small brood-nest, being more readily warmed, favored the earlier building up of the colony in the spring. So the brood-nest was contracted to four or five frames during the winter and spring until a few weeks before the main honey flow, when it was expanded to eight frames, if the colony was especially strong. Then, after the main honey flow, the brood-nest was contracted again, so that a surplus of bees would not be produced, and so that no honey would be stored in the brood-nest. Doolittle, perhaps the largest comb honey producer, favored the small hives, and James Heddon, the inventor of the divisible brood chamber



A modern apiary of big hives, owned by R. R. Morrill, Batavia, Illinois.



which received so much attention for many years, was the chief proponent of the contraction system.

Dadant attacked the theory of contraction, declaring that such small hives were not large enough for the full capacity of the queen, and that the time to prepare the colony for the honey season was the summer before, keeping the colony as strong as possible for wintering, so that the large force of bees would be able to care for an adequate amount of brood in the spring, building up much more rapidly than the weaker force of bees in a small hive could do. He had many discussions in the magazines with Hutchinson, Heddon, Doolittle, and others over this question.

For many years he and his son championed the large hives practically alone, though others, as the Hetheringtons, the largest producers in the country, used large hives and wrote very little. However, the decision was finally rendered by the bees themselves. There was a series of short seasons in Michigan, where contraction was most widely practiced, and in many localities the beekeepers were unable longer to make beekeeping pay.

During the early nineties voices began to be raised against the Heddon hive and the contraction system, and through a symposium which Gleanings in Bee Culture conducted on the size of hives, it was found that an amazing number of beekeepers were favoring large hives. People were becoming interested in what the Dadants were doing, and in their system of honey production. By this time Charles Dadant had almost ceased to write for American Bee Journals, but at the request of the editors of Gleanings, he and his son wrote a long series of articles about their hives. This was almost his last contribution to beekeeping. Perhaps his efforts in bringing the Quinby, or Dadant hive to the notice of the beekeepers of the world was the greatest of all his contributions.

SWEET CLOVER—AN OLD WEED WHICH IS NOW A WONDER CROP

(*J. J. Pieper*, Urbana, Illinois*)

Its History Reads Like a Fairy Tale

"There is no more remarkable chapter in American agricultural history than the recent rapid rise of sweet clover to an important position as an agricultural crop." Statements which were issued five years ago relative to the importance of sweet clover in the United States are now far out of date.

The history of sweet clover dates back fully two thousand years and, no doubt, was serving the farmers of the Mediterranean region as a green manuring crop and as a honey plant at the beginning of the Christian era. While the plant was introduced into the United States more than thirty years before the Declaration of Independence, yet it has been only recently that farmers have learned the true value of sweet clover. It has since been carried to all parts of the world and is today acclaimed the most important soil building legume in American agriculture.

Is Sweet Clover a Weed?

Sweet clover is one of the oldest of known plants, but until recently has been considered as a troublesome weed. Farmers felt that, if it once got started on the farm, it would take the land. They had noted its aggressive nature due to the large production of seed. They watched its rapid spread along the roadsides and bemoaned the day when it would begin to take possession of the farm. Unmolested, the plants grew as high as a horse's back and with the approach of maturity, the leaves began to fall while the coarse, woody stems stood like ghosts to haunt them in their struggle to eliminate the pest. Animals left to their free choice always preferred red clover or some other palatable legume. Even today, folks who are considering sweet clover for the first time are asking if stock can be forced to eat it. All this has passed away, and the new legume is now a new crop and not an old weed.

Sweet Clover Wins a Place of Its Own

Red clover which at one time held undisputed supremacy as a legume in the United States is rapidly giving away to the on-

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ward march of the new legume. The western advance of the failure of red clover has left in its path bankrupt farmers, tumbled down houses and abandoned farms. Sweet clover is destined to restore the wealth to the soil and to bring back prosperity to the land.

The acid soils which have prevented the successful growth of red clover are no more consoling to the finicky sweet clover plants. Everyone knows that sweet clover demands a sweet soil for successful growth. There must be some very good reason why farmers will readily consent to apply limestone for sweet clover but not for red clover.

Illinois Ranks High as a Sweet Clover State

Sweet clover is grown all over the world. Every state in the union grows sweet clover. To be sure the limestone regions have the largest acreage. Alabama, Mississippi, and Kentucky grow considerable sweet clover. All states west of the Mississippi River and especially those to the north have qualified as sweet clover states. The southwest and the Atlantic Coast regions have a limited amount of this crop.

Illinois grows more sweet clover than any of the north central states. The northern part of the state seems to be very well adapted to this comparatively new legume, without further treatment. It is not to be assumed that central and southern Illinois do not grow the great soil builder. One cannot think of soil improvement in southern Illinois without thinking of sweet clover. Limestone and sweet clover make a team which has pulled many a farmer out of the rut of an abandoned farm.

A Sweet Clover for Every Need

There is a sweet clover for almost every condition of adaptation or use that one may set forth. Ordinarily we think of the old biennial white flowered sweet clover when the crop is mentioned. This type is the most important but here again the varieties within the species are almost as different as the species themselves. When all species are grown side by side, one soon learns to respect the "old biennial white" all the more. Aside from this common type, the best known variety is probably Grundy County Sweet Clover. This strain was developed in Grundy County, Illinois, and is smaller and earlier than the ordinary biennial white sweet clover. The plants rarely reach a height of more than four feet; the stems are small, well branched and leafy. It matures from ten days to two weeks earlier than the ordinary sweet clover.

Grundy County Sweet Clover possesses a uniformity of type of plant which makes it a good seed producer. The small plants are easily harvested with a grain binder and threshed with a

clover huller. While this strain of sweet clover has many good points to recommend it, yet it is not equally fitted for all uses. As an early flowering plant for bees, it is well adapted except that the period of blooming is shortened by the amazing uniformity of the strain.

For pasture it matures too early. By the middle of July when blue grass pastures have dried up and forage is in greatest demand, Grundy County Sweet Clover has matured. Since the stems are not as large and woody as the common types, it makes better hay than the coarser strains. As a green manuring crop, the Grundy County strain has some decided advantages. It can be plowed under easier and will furnish about as much fertilizer as any of the other species. There are several other early strains like Crystal Dwarf and Early Dwarf which are similar to Grundy County Sweet Clover.

Farmers have been clamoring for strains which are later than the ordinary type instead of earlier. These are wanted in order to extend the grazing period. They should start growth early in the spring and remain green and palatable well into the summer. Recently, experiment stations have set about to produce such a strain. Several of these are now developed and promise to fill a need which has grown urgent. Some of these strains are from seven to ten days later than the ordinary strain. Large types are undesirable, while small, late strains are much in demand. Some recent importations from foreign countries are promising; one such species remains green much longer than any other heretofore tried out.

Winter hardy strains have been produced in Canada like the Artic, a white flowered variety and Albotrea, a yellow flowered strain. Very recently a sweet clover bearing many fine stems and closely resembling alfalfa has been discovered. Sweet clovers which will withstand the cold dry climates of the northern great plains are being developed. Because of the miserable failure of sweet clover on acid land, a strain is being sought which will tolerate these conditions.

An Annual White Flowered Sweet Clover is Found

As far back as in 1898, reference had been made to the finding of an annual white flowered sweet clover. In 1914, the Illinois Agricultural Experiment Station took some data upon the growth of an annual sweet clover compared to the biennial form. It was not until 1916, however, when Professor Hughes of the Iowa Agricultural Experiment Station discovered an annual white flowered sweet clover that any significance was attached to the new strain. From this time on, great interest has been manifested in the annual sweet clover, now known as Hubam. Beekeepers especially have found this strain to be very promising. Soon it was widely grown throughout the United States, but

since experimental results show that the biennial white sweet clover will yield about the same amount of hay as the annual form, the acreage of Hubam has been reduced considerably in the last few years. One should not condemn the annual forms too severely, for no doubt a place will be found for them in our cropping systems. Every type of sweet clover which has been developed should be tried out sufficiently in order to learn something about its requirements and the place which it will occupy in our future agriculture.

The Yellow Types of Sweet Clover Have Never Been Important

The yellow annual sweet clovers are important only in the southwestern part of the United States. They have been tried out many times in Illinois, but because of their poor yields have not met with favor in our state. From the beginning, the yellow biennial strains have been considered only slightly better than the annual types. More recently, however, certain varieties have been discovered which are promising. Albotrea, a yellow strain which has been produced in Canada promises to fulfill a need which has developed in the corn belt.

Several new species of the yellow biennial sweet clover have recently been introduced into the United States. Some of these are very promising. In general, these species of sweet clover do not grow as tall as the white sweet clovers. Usually they appear to have smaller stems, are well branched, and quite leafy. Certain of these strains are more hardy than the white flowered sweet clovers. Their one great drawback is that they mature early and are not well adapted to grazing. One strain of the yellow flowered sweet clover which was grown on the experimental farm here at Urbana last year remained green much later than any of the white forms. With these new introductions of the yellow flowered sweet clover, some very valuable strains may soon be developed. If late varieties are developed, as they no doubt will be, yellow flowered sweet clover may occupy a place some day equally as important as the white flowered strains.

Sweet Clover is Widely Adapted With Reference to Climate

Sweet clover can be grown successfully in practically every state in the union. It does equally well under humid or dry conditions and can also be grown in the hot climates as well as the cold. One recognizes, however, a marked difference between the various strains and their ability to withstand the very adverse climatic conditions.

Sweet clover is more drought resistant than alfalfa and will at the same time stand more wet weather than will alfalfa. It is grown as far north as any of our important legumes. Because of its ability to withstand heat, it promises to be the most important legume in the cotton belt. As soon as the soils in this

region are made adaptable to the growing of sweet clover, it will invade the south as has no other soil building legume.

Under certain conditions which are not very well known, sweet clover will freeze out more readily than alfalfa or red clover. It seems as though sweet will heave out worse than either of these crops. It is probably due to the fact that it is a tap rooted plant and cannot withstand the action of frost as well as some other legumes. The fall treatment of sweet clover has much to do with its resistance to winter killing.

Only Sour Soils Limit Sweet Clover

Sweet clover is probably the most widely adapted of any legume grown in the United States. This statement is made, realizing full well that sweet clover will not grow successfully on acid soils. Any soil that is sweet will grow sweet clover. This probably is not true of any other important legume grown in this country. Soils which are too poor to grow alfalfa and red clover will grow sweet clover well. Many farmers have raised the question as to why they cannot grow alfalfa on land which will grow good sweet clover. This may also be asked with reference to red clover. The answer to the question is that no soil is too poor for production of sweet clover. While this crop probably does better on clay loams and silt loams, yet it will do well on sandy soils and on soils tending to be peaty.

Sweet clover requires the same kind of inoculation as alfalfa and will not grow successfully without it.

The Culture of Sweet Clover is Very Much Like Red Clover

Sweet clover can be seeded in winter grain the same as red clover or it can be seeded alone the same as you would grow alfalfa. The seedbed should be no different than for either of these crops. The best time for seeding sweet clover on winter grain is probably the latter part of February or the first part of March. When seeded in spring grain, it is seeded at the time the spring grain is sown. If grown alone, it can be seeded any time from early spring to the middle of August.

The only factors which will determine the best time of seeding during this period, when grown alone, are weeds and soil moisture. This condition is no different than that recommended for alfalfa. The rate of seeding varies from ten to fifteen pounds per acre. Where a good seed is used and where the soil and moisture conditions are above the average, the rate of seeding may be reduced.

The question is often raised as to whether one should seed hulled seed or unhulled seed. If sown during the winter months, unhulled seed may be used, but at all other times hulled seed should be sown. Sweet clover usually has an unusually large percent of hard seeds—seeds whose seed coats will not permit

the entrance of water. Such seeds lie in the ground and will not germinate until the seed coat has become permeable to water. If sweet clover is seeded at a time when the action of freezing weather is not present to bring about this condition, only scarified seed should be used. Scarification is merely the scratching of the seed coat so that water may enter. This is done with a machine known as the scarifier. It is so constructed as to blow the seeds against a sand paper surface which produces the effect desired. Many cases may be found where unscarified seed will not germinate more than 60 percent, whereas if the same seed are run through the scarifying machine, the germination will be increased to 95 percent.

As far as is known at the present time, sweet clover seed may be secured from any source. There are no regional strains like we have in red clover and alfalfa. While we recommend northern grown alfalfa seed and domestic grown red clover seed, yet sweet clover seed which is produced in any region will do well in our state providing it is the right variety.

Poor Stands Result From Keen Competition

The competition for moisture between the grain crop and the clover is frequently so keen as to reduce the stand of the legume. Sweet clover, however, seems to withstand this competition better than most clovers. The best stands can be obtained, where a reduced rate of seeding of the small grain is practiced.

Sweet clover will probably do better in barley than in any other small grain. Early oats will give better results than late oats, while wheat will also act as a good nurse crop for sweet clover. The poorest results have been obtained where clovers have been sown in rye.

The question is often raised as to whether sweet clover can be seeded in an inter-tilled crop, like corn, after the last cultivation. Out of a number of trials which have been conducted at this experiment station, only a few successful crops have been obtained. Usually the moisture conditions are so poor at this time of the year and especially in a corn field that good stands cannot be expected. If we have a rainy season following the last cultivation of corn sufficient to give the sweet clover a good start, an excellent stand may be secured. In one year out of five, good results have been obtained.

Sweet Clover "Nicks" Well in Mixtures

Quite frequently, sweet clover is seeded in mixtures especially where it is wanted as a pasture crop in late fall and during the following year. A common mixture which has been recommended is four pounds of sweet clover, four pounds of alfalfa, four pounds of red clover, and four pounds of Alsike clover, this amount to be seeded per acre. Sweet clover has also been grown

successfully with grasses like timothy, and orchard grass. More recently, it is being seeded in blue grass pastures either by burning off the old grass before seeding or by drilling it directly in the sod. While this practice is rather new, yet some excellent reports have come to us where it has been tried. If sweet clover is seeded in this manner, pasturing should be delayed until the sweet clover gets a good start. Old blue grass pastures have been revived by sowing them to sweet clover. The fertilizing value of the sweet clover has evidently been of great value to the pasture mixture.

Where sweet clover is being grown as a honey plant, early, medium, and late varieties should be mixed together, so as to extend the blooming period. Such a mixture should not be harvested for seed.

Sweet Clover Prepared for Winter

Sweet clover is very much like alfalfa in that it should not be pastured late into the fall nor should it be cut for hay during the period in which it is making preparation for the winter. The last six weeks before killing frost may be termed the preparation period for sweet clover. If the crop is pastured heavily or hay is harvested during this period, there is likely to be a great deal of winter killing. This is the time when the plant is storing up root reserves in order to withstand winter and in order to give the plant a good start during the coming spring. Where sweet clover has been harvested either by cutting for hay or by pasturing during this preparation period, the roots are small and the plants heave readily.

Sweet clover has been harvested successfully, extremely late in the fall. This practice has been confused with cutting sweet clover during the preparation period. After the root reserves have been stored, hay may be made late in the season without any great damage to the crop. One could also pasture sweet clover extremely late in the season without any material damage to the crop.

Considerable feed may be obtained from sweet clover during the first year if pastured with caution or if hay is cut after the root reserves have been stored. On the experimental farm, nearly two tons of hay per acre have been obtained from the biennial white flowered sweet clover in the fall of the first year. This hay is quite palatable, is of good texture, and compares favorably with alfalfa.

Hay Problems are Presented by Sweet Clover

During the second year, it is rather difficult to make good hay from sweet clover. In an effort to produce seed, the plant begins at once to send up seed stalks, which become rather coarse and woody. After seed is produced, the plant dies. As the plant

enters the blooming period, it becomes more sensitive to cultural practices which interfere with seed production. Cutting sweet clover at this time for hay usually kills a very high percentage of the plants. If one wishes to make hay from sweet clover during the second season and at the same time obtain a second crop, it will be necessary to cut before the plant reaches the bud stage and at the same time cut so as to leave the stubble high. These recommendations almost preclude the possibility of making good hay from sweet clover during the second year without killing the plant. Where one does not expect a second crop from sweet clover, it may be cut close to the ground at the time it comes into bloom or at least before plants become woody and before the leaves begin to fall.

Where sweet clover is pastured during the second year, one should begin before the plants become too large and enough animals should be used to keep the growth well eaten back. If the plants grow too large, they become coarse and woody and animals do not like them as well as they do where the plants are kept green and succulent. The coarser plants are not nearly as palatable as the younger shoots.

When Should Sweet Clover be Harvested for Seed?

There has always been difficulty in recommending the best time of harvesting sweet clover for seed. Our strains of sweet clover have been quite variable and due to this fact, some bloom earlier than others which makes it difficult to recommend the best time for harvesting for seed. Even where the strain is quite uniform in its maturity, we find that the individual plant begins blooming at the base of the flowering stem and continues for a long period until all of the flowers have been produced. This, of course, means that the seeds mature in exactly the same way and that the plant is still blooming while some seeds are mature and are beginning to shatter. Seed should be harvested when the largest amount appears to be mature regardless of any other factors.

Sweet clover seed is harvested in three different ways. Where the strain does not grow too large, it can be harvested with a binder the same as small grain and threshed with a clover huller. Sometimes, it is necessary to thresh the sweet clover with a grain separator and later to run it through a clover huller or a scarifier in order to remove the hulls.

Several types of machines have been invented which beat out the sweet clover seed into a platform. The advantage claimed for this type of machine is that it harvests only ripe seed. This has a tendency to make a more uniform strain since seed is taken only from plants of like maturity.

The third method of harvesting sweet clover seed is by the use of the combine. This method is new and has not been tried out sufficiently to make recommendations.

Sweet Clover a General Purpose Legume

While sweet clover is well adapted for many purposes, yet it excells as a soil builder. Soil building and sweet clover are almost synonymous to the man on a poor run-down farm.

There is no plant which will furnish as much forage when pastured as sweet clover. While there are legumes more palatable and probably some more nutritious, yet an acre of sweet clover will carry more head of cattle than any other rotation pasture grown in the corn belt.

As a honey plant, the merits of sweet clover have long been known. By using strains varying in their time of maturity, one can furnish an abundance of bee pasture on a small acreage.

Good hay can be made from sweet clover in the fall of the first year, but difficulty is experienced if one attempts to harvest hay the second year. Whereas the hay harvested the first year compares favorably to alfalfa yet that which is harvested the next year is likely to be coarse, woody, and unpalatable.

Sweet clover promises soon to be the leading legume in the agriculture of Illinois.



Out-of-state beekeepers attending Inter-State Meeting at Hamilton, Illinois, August 9-11, 1927—M. C. Berry, Montgomery, Alabama; John M. Davis, Spring Hill, Tennessee; George L. Lott, Louisiana; P. J. Myers, Missouri; A. D. Worthington, Iowa; J. V. Ormond, Arkansas; E. S. Prevost, South Carolina, and W. E. Anderson, Louisiana.

THE INTER-STATE MEETING AT HAMILTON, ILL.

(Charles' Hofmaster, Vinita, Okla.)

August 8, 1927, Hamilton—ward ho. There was to be in Hamilton, Ill., on the 9th, 10th and 11th of August a big beekeepers' chautauqua, or convention—reunion—roundup. I was not exactly sure which name was right. But it did not matter. I was a-coming. I got off the train at that little architectural gem of a railroad station at Keokuk, Iowa. Keokuk and Hamilton are sister towns, separated only by the broad Mississippi, which is crossed here by a double decker bridge, the lower level of it is used for steam and electric railway, and the upper level for vehicles and foot passengers. While Keokuk is a good sized, bustling city with a population of about 18,000, Hamilton is only a small, quiet country town of some 1,700 inhabitants.

Now this piece of the Mississippi between these two towns is really one of the beauty spots of the country, besides being memorable as the site of that celebrated engineering master-work, the Mississippi dam.

Standing upon the aforementioned bridge, one views a wonderful panorama. The high lands, or bluffs as they seem to be called here, come on both sides up to the majestic river. On the Iowa side are the massed buildings of the City of Keokuk on the bluffs and coming down to the foot of them, with the railroad along the bank of the river, and opposite on the Illinois side, one sees the residences of Hamilton peeping through the green of the trees. Up-river, only a couple of hundred yards away, stretches across the river, the great Mississippi River power dam, dominating the whole landscape. A dry dock, the lock and the great power house, where as much as 300,000 horse power of electricity can be produced, are toward the Iowa side of the river. Happily, the builders, instead of the usual drab ugliness of industrial buildings, have in this instance erected the whole massive and imposing structure in simple, grand and impressive architecture, thereby greatly enhancing, instead of marring, the beauty of the whole scenery. On the roof of a clothing factory on the bluff in Keokuk a big sign, facing the river, bears the legend, "We Make Big Dam Overalls." From the Illinois end of the bridge, a new concrete road skirting the edge of the river leads to the town of Hamilton. Too bad, there was not a path for walking provided, as it would make a wonderful promenade on account of the scenic view. But then, who nowadays wants to promenade?

Hamilton, as already stated, seemed a very quiet town with only a small business part, and a pretty residence district. Small signs, reading, "To Beekeepers' Meeting," thoughtfully posted at convenient places made it easy for strangers to find the meeting place. It was in a pretty, natural park, covering ten acres in the residence section. Tall, slender-bodied trees, oaks, shellbark hickories, hackberries, elms, etc., provided a dense shade over nearly all of it. In a little opening stood a small permanent building comprising a covered speaker's platform with a small back room to it, obviously used for town meetings. For this occasion, a big new tent-roof, almost the size of a one ring circus tent, was attached to the front of the speaker's platform. Under it some four or five hundred chairs were placed in rows. A little distance from the big tent was a small open-front tent for the purpose of registration and information. There a dark-eyed young lady registered visitors, and provided each registrant with a badge consisting of a white silk ribbon with the imprint "Inter-State Meeting, Beekeepers, Hamilton, Ill., Aug. 9, 10, 11, 1927," a cross slip with name and address of registrant and a white button to pin the whole on our coat lapels. The button bore the picture of a lemon-colored queen bee with the motto, "Our Toil Doth Sweeten Others." By afternoon time, quite a big crowd had collected, standing around in groups and gradually filling the auditorium. At one o'clock, the meeting was called to order. I do not intend, of course, to dwell on the proceedings in detail, but will confine myself to skipping along in a hurry, only touching doings and happenings here and there. At this first meeting, Mr. J. Gwin of Wisconsin, presided. In spite of his fierce and forbidding scowls, he proved to be a very jovial chairman.

First, Prof. H. F. Wilson of Wisconsin, who is the chief originator of these inter-state meetings, made an address, then Mr. C. P. Dadant, looking hale and hearty, addressed the assembly, extending to us a hearty welcome to the City of Hamilton. Then the chairman introduced the first regular speaker, Mr. V. G. Milum of the University of Illinois. The chairman informed the crowd that Mr. Milum used to be a Wisconsin man and only lately went to Illinois, "And the first thing he did when he came to Illinois, he went and got married," thereby scowling his strong make-believe disapproval for thus passing up the fair daughters of Wisconsin. But Mr. Milum also ably exonerated himself. In Wisconsin there is a statute providing a five days—I forget the legal name of it, anyway, five days must elapse between the issuance of the license and the wedding ceremony, and this gave the girls always plenty of time to take a good second look and then decide to change their mind about the venture. I only mention this incident to show the vein of mirth which pervaded all the meetings, often taxing the shaking capacity of our diaphragms to the utmost. Mr. Huber Root of Ohio, also made a very interesting speech. At the close of his talk, he told a story of having attended once a dinner at which a hair was



Dr. O. W. Park, Ames, Iowa; Dr. L. R. Watson, Alfred, New York;
Professor H. F. Wilson, Madison, Wisconsin

discovered in the honey on the table, also one in the iced tea and another one in the apple sauce. The first and second cases could easily be explained. The hair in the honey must have come off the comb, and the hair in the iced tea got there when the ice was shaved, but he could not account for the hair in the apple sauce because it was made of Baldwins. After the meeting some of us discussed it, and one thought the apples used in the sauce must have been shipped in a barrel and that hair came off the probably dandruffed barrel head.

For that night, we were all invited to an informal social meeting at the residence of Mr. C. P. Dadant to begin at about 7:30 P. M. The lawn, lit up by rose tinted electric bulbs and the veranda were soon covered with groups of beekeepers in animated discussions among themselves. Later on, Mr. Pellett introduced a few of the veterans present and each made an address. First was Mr. J. M. Davis of Tennessee, a venerable, typically southern gentleman and quite a good speaker. Then Mr. C. P. Dadant gave us a brief and very interesting history of the big Mississippi power dam, stretching across the river right below the hillside from the lawn on which we were gathered. How a handful of prominent business men of Keokuk and Hamilton, he, himself, one of that group, some thirty years ago, conceived the idea of damming the mighty Mississippi, incorporated with a paid in capital of \$2,500.00 and after overcoming many difficulties built and finished the mammoth project, which stands today as solid as that day when the last shovel full of concrete was put in.

Next spoke Mr. Harry Lathrop, and after him came the last speaker, Mr. Diemer, the popular Missourian. We Oklahomans know him well. He bosses the bee and honey department at our state fairs every year.

Next morning, I took advantage of the opportunity to visit the power house of the big dam. After a group of bee men had collected, we registered and each had to sign a release slip, (releasing the company from responsibilities) then a guide took us through the plant. It was interesting enough, but laymen like us were naturally somewhat bewildered among all that giant apparatus. Warning signs not to touch this and that were plentiful. Needless to say, we touched nothing, for instance there was a sign beside some kind of a switch, giving the information that the switch controlled 110,000 volts of electricity. The attached warning "Do not Touch" appeared almost like a huge joke. Who would want to touch a 110,000 volt line. This visit at the dam made me miss most of the forenoon program.

At 10:30 we adjourned to visit the Dadant factory down below the bluff. Here we saw the manufacture of comb foundation from start to finish, beginning at the receiving bin with its accumulation of wax in every conceivable shape and condition, through the melting, refining, and all the other processes, till the belts of wax running through the silvery, shining foundation

rollers and cut by revolving knives in exact length, had evolved into the sheets of foundation with which we are all familiar. These were then received by the deftest-fingered girls I ever saw, who sorted and stacked them with tissue paper between the sheets of foundation. In spite of the speed of the oncoming sheets of foundation, they unerringly flicked every occasionally defective sheet into a waste box.

At the afternoon session, Mr. Hambleton, a government expert of Washington, D. C., and Mr. Jay Smith of Indiana, spoke. Mr. Jay Smith was well disguised. You may say he was in this instance, his own natural self. But I beg to differ. One cannot introduce himself twelve times a year to the fraternity with a flowing set of belt-length bee whiskers and then appear before the crowd with a smooth, rosy chin and claim to be "it." As it was, probably most of us would never have known who he was, without the introduction of the chairman, but with his far-famed, barbed whiskers, every last one of us would have recognized him instantly in the midst of a rioting mob.

After the speeches, we went in a body to the moving picture house of the town, where Mr. W. E. Anderson of Louisiana, with a small projecting machine showed us a series of moving pictures of the flood disaster on the lower Mississippi. He accompanied his pictures with a descriptive talk and also made a plea for help for the stricken beekeepers of those districts.

For that night, an entertainment was arranged at the lawn of the residence of Mr. Henry Dadant, to begin at 7:30 P. M. It was to be a mock court. This form of entertainment is well-known down in Oklahoma under the name kangaroo-court, and is often given on winter evenings in country school houses. The fines at this court were to go to the fund for the flood sufferers. Presiding judge was that irrespressible and inimitable Scotchman, Mr. Barr, who was also one of that strong Wisconsin contingent to this meeting. There was a burly "sheriff," too, with a bellow like a bull, and a tin star as big as a dessert plate. The culprits did not have even a Chinaman's chance. The ludicrous charges were framed on them while they were being hailed before the bench. But it was a cheerful bunch of fine payers. Once the court recessed to let a quartet of singers, local talent I understand, give us a few selections, and these were followed by a son of Mr. Barr giving a solo, accompanied on the piano by Miss Mary Elizabeth Dadant. This part of the program was a real treat and accordingly appreciated by the audience.

When court resumed, another judge had temporarily usurped the bench, and when the canny Scot, Mr. Barr, returned, he found himself facing charges and was dealt his own medicine. At last, when Mr. Barr was through with the individual cases, he requested all married men in the audience to come before him, and after they had complied with the request, he gave them in his smoothly flowing Scotch burr, a little talk on the blessing

and comfort of having a loving wife, etc., and at the finish, he asked the startled bunch to file by the treasurer and each donate to the good of the cause as much as he thought his wife was worth to him. The surprised bunch fell in line and filed by the treasurer. But I fear, quotations of the value of good wives must not have been exactly as high as would be popularly expected.

Next day, August 11th, at the forenoon session, Mr. Diemer of Missouri, presided. Regular speakers were Mr. A. Allen of Missouri, and Mr. C. D. Adams of Wisconsin. The chairman also introduced a visitor, a bee inspector from Arkansas, to give us a short talk. Mr. Diemer, tormenting teaser that he is, pronounced the name of the state in the eastern way, "Ar-kansas." Now, this cannot be done if there is any citizen of that proud commonwealth around. I knew right well what would happen. The gentleman from Arkansas arose immediately to full over six and corrected the chairman as to the proper pronunciation, "Arkansasaw," accent on the last syllable. After an ensuing humorous controversy, a vote was taken which cost us nearly a quarter of an hour of valuable speaking time, but it was well worth it. Another visitor from way east, a bee inspector from North Carolina, was also invited to exhibit his good looks on the platform and give us a talk, too. He did both creditably.

Mr. Diemer contended for Missouri to have the next interstate meeting of the beekeepers.

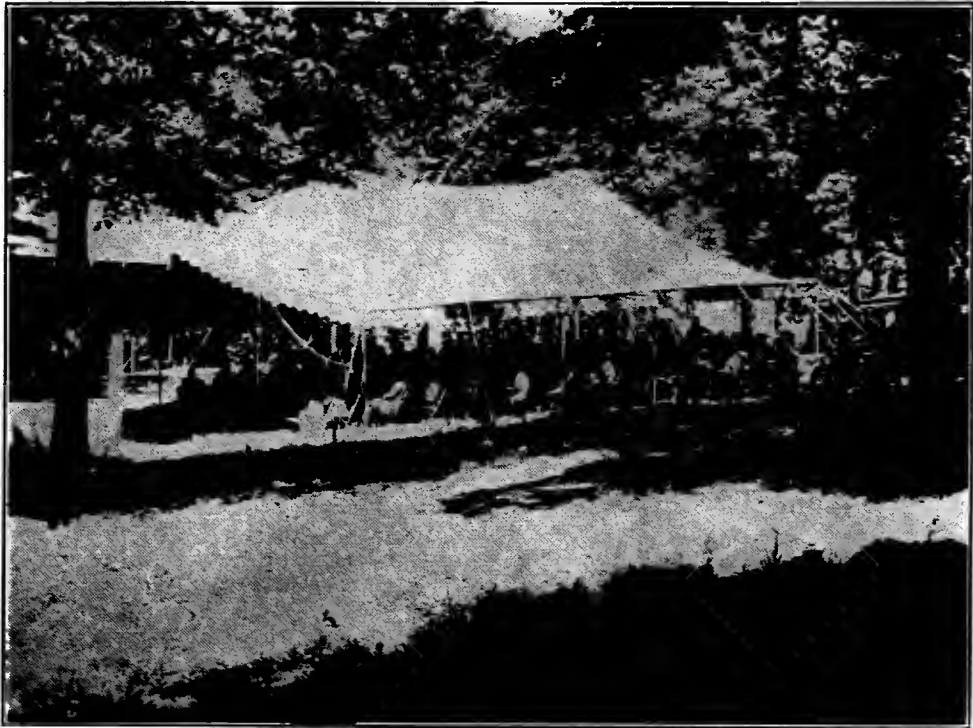
This sketch would not be complete without mentioning the demonstrations of artificial fertilization of queens, given by Dr. Watson. Those demonstrations were certainly of great interest and we visitors felt very much indebted to the parties concerned who arranged this treat for us. The smallness of the objects used in this work and the delicate character of the manipulations, did not permit a demonstration to a large audience. Dr. Watson gave a demonstration after every session (four times altogether) to small groups, thus insuring the close range observation necessary for his work. The demonstrations were given at the Dadant library down at the factory. Dr. Watson is a very affable gentleman, and took great pains in thoroughly explaining and manipulating his work to his audiences.

For the last afternoon was scheduled a trip to some outapiaries of Dadants'. A string of automobiles took those who wanted to go out into the country. We passed once a rather rare sight for these western states, a big field of buckwheat in full bloom. First we visited an apiary of Italians in old style Dadant hives, then another apiary of Caucasian bees. Here we noticed a peculiarity of the Caucasians, the big accumulations of propolis on the under side of the frames just inside of the entrance.

We had a fine time. Just turn a bunch of beemen loose in an apiary and you have a first-class informal meeting with all kinds of discussions, arguments and all other trimmings. This trip

ended the program of this great meet. I must also state that what few townspeople of Hamilton, and even of Keokuk I met, showed all a very kind interest in the visitors.

I did not intend to write such a lengthy story, but like Topsy, it just grew.



An interesting session at the Inter-State Meeting

ACTIVITIES OF COUNTY ASSOCIATIONS FOR 1927

Champaign County Association

(George Rasmussen, Champaign, Secretary)

During 1927 the Champaign County Beekeepers' Association held three meetings. One indoors, February 24th, and two field meetings during July.

At the indoor meeting in February the officers for the previous year were unanimously reelected for another year. Besides this short business meeting, Mr. V. G. Milum gave us a good talk on spring management, and Mr. Geo. E. King of the University gave us a talk on the relation of the queen to the honey crop.

Our first field meeting was held on July 12th at the apiary of Mr. E. C. Erb, Sidney, Ill. Speakers were Mr. Geo. E. King, of the University and Mr. W. H. Snyder of Decatur. Five colonies of bees were transferred to modern hives.

The second field meeting was held at the apiary of Mr. W. H. Asherman, Dewey, Ill. The speakers at this meeting were Mr. V. G. Milum, Mr. Geo. E. King and Mr. W. H. Snyder. Eight colonies of bees were transferred to modern hives.

Beekeeping in Champaign County is on the increase. Since the foulbrood clean-up campaign has been on, several beekeepers have been gradually building up their apiaries, although none of these are large as yet. There are several beekeepers who show promise of doing very well with their bees.

Cook County Association

(E. A. Meineke, Arlington Heights, Secretary)

The Cook County Beekeepers' Association started its 1927 activities with a meeting on January 31 in the Rose Room of the Great Northern Hotel. Mr. Jay Smith, the well known queen expert of Vincennes, talked for about three hours on all phases of queen rearing, introducing, etc. About ninety enthusiastic beekeepers attended this meeting.

On February 28, a business meeting was held for the election of officers and a discussion of inspection. The following officers were elected:

President—Mrs. H. E. Kerwin, Gross Point.

First Vice-President—F. E. Briggs, Arlington Heights.

Second Vice-President—A. M. Stevenson, Chicago.

Third Vice-President—Frank Hofmann, Lyons.

Fourth Vice-President—C. L. Hibbard, Midlothian.

Fifth Vice-President—Mrs. W. C. Young, Chicago.

Secretary-Treasurer—E. A. Meineke, Arlington Heights.

Mr. C. O. Yost, the Chief Inspector of Apiaries of the State of Indiana, spoke on "What Indiana is Doing in its Inspection Service."

Mr. A. L. Kildow, the Illinois Chief Inspector, gave a talk on "How to Know and Find Foulbrood."

Mr. J. R. Wooldridge, Chief Deputy Inspector, told of the progress of inspection in Cook County during 1926 and the plans for 1927.

A campaign was started to aid in getting the inspection appropriation passed by the State Legislature. Following this meeting many members wrote to their representatives at Springfield and the secretary carried on considerable correspondence with all representatives of this district as well as with the Assistant Director of Agriculture, Mr. E. D. Turner, until the appropriation was finally passed.

On Saturday afternoon, July 23, about one hundred beekeepers from Cook and adjoining counties gathered at the apiary of Ellsworth A. Meineke, near Arlington Heights. Mr. J. M. Barr, the interesting and witty Scotchman from West Allis, Wisconsin, gave a talk on how he produces honey, with special emphasis on comb honey.

A representative of the Kellogg Company gave a short talk on what the Kellogg Company is doing to advertise honey, and distributed a liberal supply of honey pamphlets.

The next summer meeting was held on September 10 at the apiary of Mr. Frank Hofmann at Lyons, Ill. This meeting was very well attended. Professor Milum, beekeeping expert from the University of Illinois, was the big attraction at this meeting and gave a very interesting lecture on "The Latest Developments in Beekeeping." Several of our members also gave short talks at this meeting.

The number of meetings held in 1927 was a little below average in number, but all were well attended and the enthusiasm of the local beekeepers has not waned.

Following the last regular meeting a movement was started to expand the area cleanup campaign which was started several years ago in Cook County, to the surrounding counties. DuPage County has been most active in this movement. Their association joined in the Cook County Association in a body, as a first step in that direction. Lake and McHenry Counties have also shown some interest in the movement for extending the cleanup area. All of our meetings draw beekeepers from other counties and we have quite a few members from outside the county.

(The Cook-DuPage County Association has been especially active to date in 1928, with good meetings on February 6th and March 26th reported.)



Honey Exhibit of DeKalb County Beekeepers' Association

DeKalb County Association
(*Carl H. Tudor, DeKalb, Secretary*)

Our association held three picnics in the fall of 1927 which were a success. One was at the home of Ray Thompson of Sycamore, one at Christ Oleson's yard at Hinckley and the other at the yard of Chris Holm of Genoa. The association had a fine honey display at the mid-winter fair held at Sycamore, February 7 to 10, 1928. Our officers for 1928 are: Wm. Ritter of Genoa, President; W. W. Harris of Malta, Vice-President, and C. H. Tudor of DeKalb, Secretary-Treasurer. We are planning to hold a summer meeting.

Fulton County Association*

At a meeting on March 18, 1927, the beekeepers of Fulton County organized the Fulton County Association with sixteen charter members. The election of officers resulted in the choice of H. D. Rogers, of Lewiston, for President; Mr. Belt of Banner, Vice-President; Farm Advisor, J. E. Watt, of Canton, Secretary; and Dr. J. E. Aigley of Farmington as Treasurer.

Grundy County Association

The Grundy County Association was not active in 1927, but they started 1928 with a meeting at Fraternity Hall in Gardner on Saturday afternoon, February 11th. V. G. Milum discussed the "Causes, Symptoms and Treatment of Bee Diseases" and explained the benefits of affiliation with the State Association. The association decided to affiliate. The election of officers resulted in the reelection of William Osborne of Morris as President, and Ernest H. Davy, of Morris, as Secretary-Treasurer.

Henry County Association
(*Elmer Kommer, Woodhull, Secretary*)

As secretary of the Henry County Honey Producers' Association it becomes my duty to make this report for our Association.

We have here in Henry County one of the live associations in this State who believe in giving every member their money's worth as long as they remain a member of this Association.

This is done by cooperating with them, by looking out for their needs, saving them money in securing supplies and working wax into foundation, securing Journals at a reduced cost and many other ways that this association can be of assistance to their members.

*In the absence of a report from the Secretaries of the local associations the state secretary has included such information under the heads of the different county associations as he has available from previous reports in the monthly bulletins and personal information. In such cases the name of the local association secretaries have been omitted.

This association was organized in October, 1920, with only 13 members but has grown steadily until at present it is one of the largest Associations in Illinois. The present officers who were elected in October, 1927, are as follows: Ed Kommer, Andover, President; R. J. Mahaffey, Cambridge, Vice-President; A. E. Swanson, Hooppole, Treasurer; Elmer Kommer, Woodhull, Secretary; and three directors as follows: Edwin Peterson, Kewanee; P. A. Carlson, Galva, and W. L. Myers, Geneseo.

On February 28th, 1927, a special meeting was called for the purpose of clubbing together and sending away the beeswax to have foundation worked. An order of 407 pounds was sent in with a saving of several dollars to the members on foundation. Then again on November 29th, 1927, another bunch of wax, 588 pounds, was sent ranging in amounts from 10 to 165 pounds from each member. This time even more was saved than on former orders.

Only one field meeting was held in our county during 1927 on account of the Four State Meeting at Hamilton as we knew that several members would attend that meeting which they did. Our meeting was held at Galva, at the apiary of P. A. Carlson who has an up-to-date apiary in town. For that meeting, we had the privilege of having as our speaker, Mr. Henry Dadant of Hamilton, Ill., who spoke on Comb Building, and had along a lot of drawn combs drawn from various kind of foundation and some from parafin which were imported from other countries. The most interesting comb was one that contained drone foundation which the bees tried to work over into worker comb. The bees sure made a terrible looking mess out of that comb. Mr. Dadant's talk was considered one of the best talks that had been made at any of our field meetings. We hope that we may have the honor of securing him as our speaker at some future meeting.

We also had Senator Randolph Boyd with us at this meeting, who is known as a friend of the beekeeper, who spoke on Appropriations. He informed us that he had supported our bills and that we had received all we had asked for, and was ready to do all he could for us as Senator, for he knew our bill was for a worthy cause.

Nine new members were added to our Association at this meeting and the total attendance was over 50.

Another honey display was made at the Henry County Fair. It was one of the best displays we have ever exhibited. Premiums to the amount of \$50.00 were awarded to those having entries on display. This department draws more attendance than any department at the fair.

Other counties adjoining us are putting on displays. Last year at Mercer County they had a dandy display. Being their second year at it, they are coming along fine.

Plans are being made for another field meeting in this county during 1928, also for a county exhibit at the fair.

As for beekeepers, they use mostly standard 10 frame hives, with some larger hives. One of our largest beekeepers has good success with the 8 frame hive. Of course, a few are still using boxes to hive swarms in. But boxes are getting scarce, so they will have to buy hives to keep their bees in. However, the box hive is fast disappearing, and are only used by those catching stray swarms and who have no knowledge of bees.

Iroquois County Association

The beekeepers of Iroquois County first formed an active association in late 1927 at which time temporary officers were chosen to hold office until the regular date, the second Tuesday in February, established for the annual election of officers. Accordingly, the association again met on February 14th, 1928, at which time the temporary officers were reelected for 1928. This means that J. M. Koritz of Buckley, as President, H. L. Dunn, Onarga, as Vice-President and Farm Adviser, L. W. Wise of Watseka as Secretary-Treasurer guide this young association which also passed a motion to affiliate with the state association. The speaker at the latter meeting was V. G. Milum of the University who discussed the question of the pending corn sugar legislation and also explained the relation and benefits from affiliation of the local county association with the state organization. The subject of bee diseases and their treatment was also discussed. The association decided to recommend the appointment of its president as their local apiary inspector.

Jersey County Association

(C. A. Mackelden, Jerseyville, Secretary)

The Jersey County Beekeepers' Association was organized June 14, 1927, and had twenty-one members January 1, 1928. We will have 90% of the beekeepers in Jersey County members during 1928. We will have "The Biggest and Best Little Association in the State" by the close of 1928.

Jo Davies County Association

No report has been received of the 1927 activities of this association, but an early start was made in 1928 with a meeting at Galena on January 28th. Deputy Inspector S. S. Claussen of Oregon, gave an address on "Why Bees Swarm."

Lake County Association

Lake County Beekeepers started their activities for 1927, by an evening meeting at Lake Forest, on Friday, May 6, 1927, at 8 p. m. The meeting was held in College Hall, the stamping grounds of Prof. Bruce Lineburg, Zoologist of the College, a beekeeper and the promoting President of the County Associa-

tion. Otis Scriptor, of Zion, is the Secretary-Treasurer. A. G. Gill, of Chicago; Wm. Frisbee, President of the Lake Forest Bee Club, and V. G. Milum were the speakers of the evening. In response to a roll call, Harry R. Warren, now of Chicago, who has invented a machine for cleaning and grading seeds, made his presence known and gave a few remarks on his former experiences in producing honey. Older readers of the bee journals will remember Warren as an alfalfa seed and honey producer of Yarrington, Nevada, who has produced as much as ten carloads of each in a single season.

Some 75 or 80 beekeepers attended the meeting, with several carloads from Zion City attending in a group. At eleven o'clock lunch was served, after which the crowd returned to inspect the bee exhibit prepared by Lineburg and for further discussions.

Professor Lineburg reported that disease had been reduced in the vicinity of Lake Forest from twenty-four diseased apiaries out of twenty-seven in 1925, to three with disease in 1927. He suggested that every community of beekeepers should organize to clean up American foulbrood in their neighborhoods through a plan of mutual cooperation and assistance.

McHenry County Association

(Ray Page, McHenry, Secretary)

Our association was organized on December 18, 1926, as the result of a notice sent out by Mr. E. J. Bryant of Elgin, who is our deputy inspector of apiaries. The election of officers resulted in the choice of Louis Pinnow, Jr., McHenry, President; Mathew McRoberts, Chumung, First Vice-President; John McDonald, Richmond, Second Vice-President; E. C. Standish, Marengo, Third Vice-President; Frank B. Reed, Woodstock, Fourth Vice-President; R. J. Barthoff, Richmond, Fifth Vice-President, and Ray Page, McHenry, Secretary-Treasurer. We held another meeting on March 26, 1927. Altogether last year we were able to register 17 members for our county and state organizations.

On December 17, 1927, we held a meeting at Woodstock at which time Mr. J. R. Wooldridge of Chicago (Past President of the State Association) was with us and gave a very interesting talk. Unfortunately, the weather was bad that day, resulting in only three of last year's members being present and about eight or ten others who are interested in bees. As the election of officers was postponed, I am still acting as secretary. I am going to send out a circular letter soon to all last year's members and all beekeepers that I know, hoping for a further increase in membership.

We want to hold a meeting in March or April and one again later in the summer at one or two of the best apiaries. We have no set dates for meetings but usually hold them on Saturday afternoons at Woodstock.

McLean County Association

McLean County was included in the November series of meetings with a good sized crowd assembled at the headquarters of the County Farm Bureau at Bloomington, on Thursday afternoon, November 16, through the efforts of Mr. W. B. Brigham who is County Superintendent of Schools and Secretary of the McLean County Association. Milum appeared first on the program giving a lecture on "Useful Structures of the Honey Bee," illustrated by lantern slides. Mr. Watts discussed "American foulbrood and its treatment" wherein he expressed the idea that foulbrood was most prevalent around cities and villages, because of the shipment and sale of honey from colonies that had been infected. He recommended that all such honey be destroyed. It was further pointed out that the average person in treating American foulbrood makes so many blunders that there are many opportunities for reinfection. Often, he says, the beekeepers clean up only a part and leave other infected material, equipment and honey available to the bees so that reinfection is almost sure to occur.

Mr. Edw. C. Heldt of Stanford, Illinois, the hustling, wide-awake, young inspector for McLean County Association gave his experiences in inspection work during 1927. He pointed out that American foulbrood seemed to be most prevalent along the river bottom areas and made a plea that all beekeepers aid him in locating all colonies of bees by giving him a list of those who are known to have bees. All beekeepers should give this cooperation to their local inspectors, for it is hard to find every colony, especially when they are hidden away in a patch of weeds which is often common.

Mr. W. E. Crowe, who operates about 80 colonies near Gibson City in Ford County expressed his faith in Hubam Sweet Clover as a producer of a honey crop. He recommended that the beekeeper himself grow Hubam clover and allow his neighbor to grow the biennial types of sweet clover, thus providing the bees with a longer honey flow since Hubam usually blooms at a different date. He reported a good market through the successful shipping of comb honey in specially constructed single crated cases to Boston, Massachusetts.

Mr. Warren pointed out some of the fundamentals of successful marketing, stressing among other things a good product put up in a neat attractive package or container with uniform attractive labels. He suggested that where the beekeeper sold honey to the grocer, the two should agree upon a fair retail price, the grocer being allowed a 20 to 25% discount from the retail price. Then with the storekeeper supplied with honey, the beekeeper should refuse to sell at retail any honey, even to his best friends, at less than the agreed retail price, thus protecting the grocer and allowing him to make his customary profit. Such treatment of your grocer should lead to renewed sales and thus

build up the market for the surplus crop. Mr. Warren pointed out that car lot shipments of honey to Chicago, offered for sale at 6 to 8 cents per pound tends to demoralize the market even for the better grades of honey and forces down the market for all.

Mason County Association

A meeting was held on Wednesday evening, November 16, 1927, with Mr. Geo. Watt of Hamilton, and Mr. Everett Warren of Chicago as speakers. A good attendance was reported. This meeting was the first of the November series. C. D. McKinley, Havana, was the 1927 Secretary of the Association.

Mercer County Association

(Harry E. Miller, Aledo, Secretary)

Previous to the fall of 1927, the beekeepers of Rock Island and Mercer Counties were united in one association, but it was thought best to allow each county independent action. Accordingly Mercer County beekeepers organized an association at Aledo with the following officers: C. W. Brown, of Aledo, President; Charles H. Creet, Reynolds, Vice-President; Harry E. Miller, Aledo, Secretary, and W. C. Egbert, Aledo, Treasurer. The association voted to affiliate with the state association.

(The Apiary Department of the Mercer County Fair established in 1926, is reported as having grown beyond all expectations. At the 1927 fair, Mr. Miller's display was said to be the largest in the Department and probably the most interesting while Richard M. Greer of near Aledo had a fine exhibit. In addition, other exhibitors were James Denving of Marston, A. N. West and John Mayhew of Aledo, and G. H. Brossmer of Viola.)

Montgomery County Association

(Wesley W. Osborn, Butler, Secretary)

In addition to our regular meetings held at the Farm Bureau office in Hillsboro, Ill., we held a field meeting September 7th, at the apiary of Mr. Geo. H. Hill in Hillsboro. This meeting was well attended and interesting addresses were made by Mr. V. G. Milum, our present secretary, and Mr. W. H. Snyder, Deputy Inspector, from Decatur, who was present as a representative of Inspector Kildow, who was unable to attend. Mr. Milum discussed for us "Fall and Winter Management," and all present greatly appreciated the information he gave us. At this meeting, we had refreshments of candy and ice cream, both made with honey, and you can guess how good they were. We were also able to display the Modified Dadant Hive, and Dadant Wired Foundation, together with other beekeeping appliances and books. These were possible through the courtesy of Dadant and Sons, Hamilton, Ill., who kindly loaned us the exhibit for display



Apiary of George L. Sauer, Polo, Illinois



Montgomery County beekeepers and visitors at Frank Zadel apiary at Witt

at our Hillsboro Fair, Aug. 31st to September 3rd, inclusive. To sort of return the favor, we up and sold every article in the exhibit, and sent Dadants the money, instead of returning the articles.

The exhibit at the Hillsboro Fair was made possible through some of our members clubbing together to bear the expense. A pleasing exhibit of comb and extracted honey was shown, with a single frame observation hive of bees and the Dadant exhibit mentioned above. A taste of honey was offered everyone stopping at the booth, which was in charge of the local secretary. Sample copies of *Gleanings* and the *American Bee Journal* were given out to interested beekeepers, and many interesting questions were answered during the four days.

A honey display was also made at the Witt Labor Day celebration, by our members there.

The honey crop was excellent, and our bees wintered well. Very little disease exists, and the inspection service through the efforts of Deputy O. W. Kennett is good. Marketing the crop is still a problem to be solved.

Ogle County Beekeepers' Association (Elizabeth Ordnung, Oregon, Secretary)

The Ogle County Beekeepers' Association held two meetings in 1927. On February 8th, we had an all-day meeting at the Coliseum in Oregon. The speakers were: Chief Inspector A. L. Kildow of Putnam; E. M. Warren of Chicago; D. E. Warren of the Ogle County Farm Bureau, and S. S. Claussen of Oregon.

On September 21st, we met at the home of S. S. Claussen, Inspector, near Oregon. The present officers were re-elected for the ensuing year, which are: Geo. L. Sauer, Polo, President; Chas. Mon, Polo, and C. D. Huggans, Polo, Vice-Presidents, and Wm. T. Hardesty, Oregon, Secretary-Treasurer.

E. M. Warren gave addresses on "Honey Marketing" and "Wintering"; State Inspector A. L. Kildow spoke on "Legislation"; Inspector S. S. Claussen talked on "Entrance Blocks."

(The present secretary, Miss Elizabeth Ordnung was elected to succeed Mr. Hardesty whose death occurred in February, 1928).

Peoria County Association

This association held a meeting on January 11, 1927, and again on February 4th. At the latter meeting Mr. E. R. Root of Medina, Ohio, lectured on "Honey as a Food" in the Gold Room of the Jefferson Hotel with the co-operation of the Domestic Science Departments of the High Schools and Bradley Institute. In addition to the lecture, Mr. Root gave a demonstration of the control of live bees.

The Peoria County Association was included in the November series of meetings with a meeting at Peoria on Satur-

day afternoon, November 19. Through the efforts of Mr. A. E. Johnson of Peoria, the secretary of the County Association, about 16 beekeepers were assembled. Mr. Warren spoke on marketing, Mr. Watt on general management of the apiary, and V. G. Milum on the anatomy of the honeybee. Mr. Myron B. Shoff of the Shoff Fruit Farms near Peoria is the president of the association and is enthusiastic about the use of bees in the orchards for pollination purposes.

Piatt County Association

(Emory Warner, Monticello, Secretary)

Our association held two meetings in 1927. At the annual meeting in January at Monticello the regular election of officers was held and V. G. Milum discussed the management of the apiary in preparation for the honey flow. The second meeting was held in July at the Scott Piatt apiary.

We have 216 beekeepers in Piatt County who have 2,500 colonies of bees.

(The Piatt County Association started their 1928 activities with a meeting at Monticello on January 7. Mr. W. H. Snyder and V. G. Milum attended as speakers. The following were elected as the officers for 1928: Mr. C. E. Watts, Monticello, President; Mr. E. C. Wynne, of La Place, Vice-President, and Emory Warner, Secretary-Treasurer. Mr. Warner also serves as the local deputy inspector.)

Richland County Association

The beekeepers of this county held a meeting on Friday, April 20, 1928, with W. H. Snyder, Apiary Inspector of Decatur, attending as a speaker. There is no evidence in the secretary's records to show that this county has previously had an active association. We hope that the meeting mentioned will result in another thriving local organization.

Tazewell County Association

This county was included in the November series with a meeting at Pekin, Saturday morning, November 19th. Some 13 beekeepers were awaiting the arrival of the cross-country speakers, in response to about 120 invitations sent out by Mr. W. H. Williams, President of the Tazewell County Beekeepers' Association. Mr. Everett Warren, of Chicago, talked on marketing and V. G. Milum of the University on the useful body structures of the honeybee. Mr. Watt, of Hamilton, covered the question of yearly management of bees. He pointed out that since the old style Dadant hive weighed between 60 and 65 pounds all colonies were fed sugar syrup to increase the weight of each colony to over 100 pounds, since each colony required 40

to 50 pounds of stores for winter consumption. Those colonies needing more stores are fed sugar syrup in the proportion of two parts of sugar to one of water, in 10 pounds friction top pails inverted directly over the frames, all feeding being done at one time. After feeding, then packing is in order in the Dadant apiaries, straw being used instead of leaves because of being cheaper. Baled straw is secured and each colony packed by placing a beat of straw from the baler at each corner of the hive, the whole being held in place by a wire net 7 feet 6 inches long, extending around the two sides and back of the hive. A mat of blue grass straw is placed above the frames with a stick across the frames to allow the passage of the bees from side to side, unless there is considerable burr or brace comb to hold up the mat.

With the removal of the packing in the spring the bees are inspected for disease and for strength. All weak colonies present in the spring being united because of their inability to keep warm and build up successfully for the honey flow. Mr. Watt also suggested that it is useless to unite long queenless bees in the fall because of the presence of all old bees which would be dead before spring. While Mr. Watt said that the colonies were examined every 10 days in the spring for disease and strength of colonies, it pays to always be on the lookout for disease. The method of treatment used is fire; when disease is discovered, bees are killed by gasoline; a pit is dug, a fire built and the bees and combs are dumped in. Only good new hive bodies, bottoms and covers are saved, except in case of exceptionally strong colonies, which are moved to a secluded out-yard for treatment. With such colonies the bees are brushed into a new hive containing four or five frames with starters only, after which the new hive is closed up. At the end of 48 hours the hive is opened with as little smoke as possible, the frames taken out, the bees brushed off, and frames with full sheets of foundation substituted. As soon as the shaken colony is established it is requeened.

In spring management, Mr. Watt pointed out that as soon as the bees extended across the hive or were just beginning to hang out, then the bees should be given super room. To control swarming after the weather is warm, a plan used successfully in 1927 was to relieve congestion in the brood nest by placing half of the brood combs in a second brood chamber above the first, and alternating the brood frames with frames of foundation, the supers being added above this double brood chamber. It was especially stressed that this procedure should not be used except after the weather is warm and stays warm. To make increase, one frame of brood with queen is placed in a new hive on the old stand, the old hive being placed on a new stand. Field bees fly to old queen leaving old hive or new stand with only young bees to which a queen is easily introduced in a mailing

cage. Young queens are secured in the Dadant apiaries by placing frames with queen-cells in nuclei in the yard as soon as queen-cells are found in the spring. These young queens are more desirable than purchased queens because of danger of injury in shipment.

Saline and Gallatin County Association

The Saline and Gallatin County Beekeepers' Association held their annual meeting for the election of officers for 1927 at Equality Township High School on the afternoon of March 25, 1927. The following officers were elected: President, Geo. B. Scherer, Shawneetown; Vice-President, R. L. Gates, Harrisburg; Secretary, Alvin Bell, Ridgway. Louie Vannis of Harrisburg was recommended for county inspector, due to the fact that Everett Weaver, their former Secretary and inspector, had moved to Emden, Illinois (Logan County). Mr. Weaver happened to be present and reported an average of 108 pounds of surplus honey from his colonies in that region in 1926, after the fall rains, which commenced August 13th, while many beekeepers failed to receive any surplus because they had allowed their bees to suffer from lack of sufficient stores during the previous early spring and summer. Another case in which "the basket that was right side up gathered the fruit." However, many of the beekeepers were still interested in that section, and they planned to hold many other meetings during the year, including a picnic in the fall, but from reports, apparently the weather man did not cooperate. The association passed a resolution favoring the new appropriation for foulbrood control and eradication. V. G. Milum attended the March meeting, speaking upon the subject of preparing the colonies for the honey flow.

Shelby County Association

This association was first organized on March 28, 1928, through the efforts of Mr. Frank Koontz of Stewardson and the assistance of Deputy W. H. Snyder of Decatur. The officers of the association are Frank Koontz, President; John Haslon, Jr., Moweaqua, and William Rincker, Stewardson, Vice-presidents, and C. E. Hill, Windsor, Secretary.

Warren County Association

(Glenn Glass, Cameron, Secretary)

The year 1927 will long be remembered as a banner year in the honey producing industry in this locality. The spring was backward and looked very unfavorable for the bee business, but when warm weather finally came the honey flow came on with a rush and lasted until late fall, due to the excessive wet weather. There has never been a year in our memory when swarming

was as prevalent as this year. Stray swarms were a very common occurrence.

Our Association secured the appointment of our president, Mr. Wallace Smith, of Cameron, as a deputy state inspector. He has commenced an active campaign to eradicate foulbrood from our locality.

Whiteside County Association

(Henry Stewart, Prophetstown, Secretary)

Our 1927 honey crop was a record breaker and there is considerable honey in the hands of the producers (February, 1928). Bees are in prime condition with prospects for 1928 considerably above normal.

Will County Association

(A. J. Polcyn, Joliet, Secretary)

We held a meeting of our county association in April, 1927, with a good attendance and an interesting program.

Four members were appointed as deputy bee inspectors with the result that they inspected all the bees they could find in Will County. We have made progress in cleaning out American foulbrood.

The honey crop in 1927 was very good.

The death of our association President, Mr. Winkler, meant a big loss to our association.

We are pushing the association more all the time and are always looking for new members.

Kane County Association

(Ross R. Morrill, Batavia, Secretary)

The beekeepers of Kane County held two field meetings in June and August. The June meeting was spoiled by a heavy rain storm.

The August meeting was held in the evening at Mr. George Bartelt's. We enjoyed a very pleasant time. Mr. Edwin Stanton gave a talk on the beekeepers' meeting at Hamilton. Mr. Ross Morrill gave a short discussion of queen introduction.

Ice cream and cake were served. We thank Mr. and Mrs. Bartelt for such a pleasant evening.

Williamson County Association

On March 26th, 1927, a number of Williamson County beekeepers met at the Farm Bureau office at Marion, at the call of Mr. Otis Kelly, Secretary, who is also the county inspector. The speaker was V. G. Milum of the University, who discussed the beneficial beekeeping practices to be followed in preparation for the honey flow.

Woodford County Association
(A. E. Thomas, Secor, Secretary)

The Woodford County Beekeepers' Association met with good success during the past season of 1927. The honey crop was exceptionally good and the honey is of very good quality.

We held one field meeting during the season, which was at the home of the Secretary on November 18, 1927. Addresses were given by George Watt of Hamilton, Everett Warren of Chicago and V. G. Milum of Champaign.

There is some interest being started among high school students in bees and beekeeping. At Eureka, our county seat, the boys organized a bee club about two years ago and from reports they have made a success.

The officers for 1927 were: J. P. Scheid of Eureka, President; Omer North of El Paso, Vice-President, and Alfred E. Thomas of Secor, Secretary-Treasurer. The 1928 officers are the same with the exception of the Vice-President, Mr. Dennis Kempf of Roanoke being elected to succeed Mr. North.

(The above association held its annual meeting with election of officers for 1928 on February 10 at Eureka. Mr. A. L. Kildow, State Apiary Inspector; Benjamin Fisher, Local County Inspector, and V. G. Milum were the speakers at this meeting. As the meeting was held at the high school the attendance was greatly increased by the presence of the agricultural and home economics classes, the latter of whom provided honey sandwiches, the honey being supplied from the apiaries of some of the boys in the classes of the association president, who is also the agricultural instructor in the high school.)



Mr. A. L. Kildow, Putnam, Illinois, State Inspector of Apiaries

ANNUAL REPORT OF THE STATE INSPECTOR OF APIARIES FOR YEAR ENDING JUNE 30, 1927

(A. L. Kildow, Putnam, Illinois)

In submitting my report for the year ending June 30th, 1927, I wish to state that it is impossible to mention the vast amount of work done, and to tell all the ways in which the beekeeper has been assisted. But in general, the beekeepers are realizing the responsibility of beekeeping and the watchword is not more bees but keep bees better.

We are still following the county organization plan and endeavoring to clean up disease and to advance our industry. About 50 inspectors worked at various times during the year. We visited 6,827 apiaries with 74,447 colonies; 1,394 apiaries had disease and 2,806 colonies were affected with disease or 3-7/10%.

In cases where it was considered safe the bees were treated; this included 1,160 colonies. In some cases the diseased colonies were left for the owner to treat. 1,039 colonies were burned. It may be possible that in some of the cases left for the owners to treat there may be a return of the disease. This will cause us to adhere to our radical treatment, the burning of all diseased colonies, more in the future than in the past.

Last year we visited 5,581 apiaries with 72,602 colonies with 1,394 diseased apiaries, or 4.1%. This shows a gain over foulbrood even if the past season was a difficult one for apiarian work on account of the extremely bad weather.

The educational part of apiculture has made great advancement and I will mention some of the meetings that will prove this. -

One of the most prominent features of the year's work was the Northern Illinois bee tour. This tour started August 10, 1926, at Savanna, Carrol County, and visited beekeepers at Polo, Coleta, Malvern, Lyndon, Dixon, Oregon, Stilman Valley, Genoa, DeKalb, Batavia, Oswego, Lockport, Joliet, Morris, Gardner, Dwight, Streator, Wenona, and finished the tour at the Kildow apiary at Putnam, with an all-day meeting. The out-of-state visitors were Messrs. Cutts and Berry of Alabama, who are noted queen breeders, and Mr. Adams, Wisconsin State Inspector.

Much interest was shown in the bee work and much information gained. Mr. L. L. Ness of Morris, who has over 1,300 colonies, explained the practical and profitable way of beekeeping. The late Edward Winkler of Joliet, who made a wonderful success of beekeeping, had 18 apiaries. The various apiaries and talks given by the many beekeepers, including G. H. Cale,

Secretary State Beekeepers' Association; Mr. Swanson of the Dadant Company; Mr. Warren of the A. I. Root Company, and Mr. Adams, Inspector of Wisconsin, added new pep to the industry.

On January 11th, the Peoria Association held their meeting and planned to have E. R. Root of Medina, Ohio, with them the next month. January 26th Woodford County beekeepers met at Eureka, where they had speaking and moving pictures. Besides the beekeepers there were present the Boys' Club and the Freshman class from the high school. As a part of the refreshments one young beekeeper served cakes made with honey for sweetening and willingly gave the recipe to all that wished it.

January 31st, Cook County met in full force and voiced their interest in advancing bee culture, and eradicating disease.

February 4th, Peoria County had the pleasure of having E. R. Root with them and listening to his wonderful address and learning more of the uses of honey, as well as seeing him handle live bees. Two domestic science classes were present and requested Mr. Root to send them his pamphlets on the uses of honey.

February 5th, Piatt County held its annual meeting with V. G. Milum of the University of Illinois as speaker.

February 8th, Oregon was the place of the Ogle County meeting. These people were very much interested in apiculture and are assisting the inspector of their locality in every way possible. Mr. Warren of the A. I. Root Company and the Farm Adviser, Mr. Warren, of Oregon, were among the speakers. The business men of Oregon showed their interest in this meeting by furnishing dinner to all present.

March 18th, the beekeepers of Fulton County met at Canton and organized the Fulton County Association, with 16 charter members, 13 different townships being represented.

March 25th, V. G. Milum of the University of Illinois held a meeting at Equality High School for Saline and Gallatin County beekeepers.

March 26th, Milum was at Marion in the interest of Franklin County beekeepers.

The beekeepers of Lake County organized an association at Lake Forest.

June 14th, the fruit growers of Jersey County made a tour of the county for the purpose of inspecting the orchards and to show the fruit growers the necessity of keeping bees to pollinate the fruit bloom. This tour was a success and at its close it was the unanimous consent to organize a Jersey County fruit growers' and beekeepers' association. The Commerce Commission of Grafton showed its interest in the undertaking by furnishing a banquet to the tourists.

With the assistance of the Department of Agriculture, the work of inspectors, the co-operation of the beekeepers and the bee literature, apiculture is making great progress.

Respectfully submitted,

(Signed) A. L. KILDOW,
Chief Apiary Inspector.

REPORTS OF DEPUTY INSPECTORS FOR 1927

Carrol, Lee and Ogle Counties (Deputy S. S. Clausen, Oregon)

I started some work in March but did not get out any in April on account of the wet spring. I inspected a total of 4,696 colonies and found 567 of them diseased. I burned 456 of them and a few were destroyed by the owners.

There is still some territory to be visited in Carrol County although the disease is getting much less. Lee County has very little disease but, of course, not so many beekeepers. The northern part of Ogle County still needs some inspection on account of Winnebago County being so badly diseased. Some townships in Carrol County need some inspection but most of it is clean.

There is always some disease brought in by people moving from one locality to another. Things were pretty well cleaned around Lanark until a man from Garden City, S. Dak., brought in 17 colonies that were rotten and exposed the whole neighborhood to disease again.

The northern part of the state had a big crop of honey in 1927 of excellent quality. We still need more honey to supply the demand. The public is getting educated to use more and more honey. The honey crop last year was largely due to inspection work and healthy bees. It seems that people eat more honey when they know that the bees are free from disease.

The bees went into winter quarters good and strong with food of good quality, mostly clover honey. Everything looks good for a prosperous year in 1928.

DeKalb County (Deputy C. H. Tudor, DeKalb)

I have the honor to transmit my report as a deputy inspector of apiaries for DeKalb County for the year 1927.

I have visited 94 apiaries having a total of 1,510 swarms of bees. I inspected 808 swarms and found 114 to have American foulbrood. I burned 77 of these and the remainder were treated.

I wish to say that American foulbrood is not as bad in my county now as it was three years ago.

Douglas and Moultrie Counties
(*Deputy Paul R. Smith, Lovington*)

During the past year I have examined 3,036 colonies of bees, principally in Moultrie and Douglas Counties. Of this number, 315 were infected with American foulbrood, which is over 10 per cent, and 1,316 of them were in boxes with non-movable frames. I think the greatest menace to beekeeping in this neighborhood is box hives.

Christian and Shelby Counties
(*Deputy Frank Bishop, Taylorville*)

	No. colonies	No. Diseased	Kind Disease	No. treated
May 1927—18 yards.....	343	17	A.F.B.	Burned 17
September, 1927.....	188	7	A.F.B.	Burned 7
Total.....	531	24	A.F.B.	Burned 24

Douglas, Ford, Vermilion and Champaign Counties
(*Deputy W. H. Force, Champaign*)

Following is my report for 1927:

County	Colonies	A.F.B.	E.F.B.	Burned	Boxes	Cross Combs
Champaign.....	1967	118	18	84	208	77
Douglas.....	106	8	..	4	27	12
Ford.....	429	40	3	21	51	43
Vermillion.....	500	35	..	19	26	5
Total.....	3002	201	21	128	312	137

In Champaign County, there was considerable American foulbrood last year. This year's report shows quite a bit of American foulbrood, but the per cent is quite less this year. It should have been a less per cent than what it is. Too many beekeepers tried to save their bees by treating and refused to carry out the inspector's instruction. Some tried to save too much by stocking the diseased brood to emerge, etc., the result being that they had more disease afterwards (as long as American foulbrood combs are stacked to emerge we still have the disease). More colonies were destroyed this year than last.

Considerable trouble was experienced in the northeastern part of Champaign County and some in Ford County, necessitating arrest in order to get things cleaned up.

Lake and McHenry Counties
(*Deputy E. J. Bryant, Elgin*)

Number of apiaries, 130; number of colonies, 1,545; number of diseased colonies, 248; kind of disease, American foulbrood; number of colonies treated, 15; number of colonies burned, 90, and number of box hives, 67. The above report covers the period from March 1 to June 28, 1927.

I found bees in the north part of McHenry and Lake Counties very weak and short of stores, mostly in eight-frame hives with no protection and did not build up to get much surplus, but in August and September they were in fair condition. The more progressive beekeepers' bees are in good shape. Clovers look good. There are some of these diseased colonies that have been treated or burned since July 1st.

Cass, Menard, Morgan and Sangamon Counties
(*Deputy Harry L. King, Springfield*)

	No. Colonies	No. Diseased	Kind Disease	No. examined	No. box hives	Remarks
July, 1926.....	317	2	A.F.B.	298	24	Burned this disease. Heavy winter loss in very poor shape.
May, 1927.....	134			128	13	
June, 1927.....	1374	1	E.F.B.	1108	18	
Total.....	1825	3		1534	55	

In Sangamon County there is very little foulbrood, if any. In Cass County at Beardstown I found American foulbrood and burned it; on return trip I found all O. K. Lots of bees in Cass County were swept away in recent floods. In Menard County I found one colony of American foulbrood, which I burned. Morgan County is spotted with American foulbrood. I did not get to make a complete round of my territory this year on account of high waters and impassible roads.

LaSalle and Bureau Counties
(*Deputy C. L. Pierce, Depue*)

The bees in this territory are in very good condition. I don't think they have ever gone into winter quarters in any better condition than they have this fall. They raised brood so late in the fall that there will be plenty of young bees to start in the spring.

Those people having small hives will have to watch carefully, as they will, no doubt, have to feed or leave a super of

honey on, for the brood frames were full of brood when the honey flow stopped.

Most of the bee men around Peru, LaSalle and Ottawa and north of these towns are working hard to get rid of American foulbrood.

At some time or other nearly everyone has had to fight American foulbrood. Those who are new in the business are working hard to overcome it. Some of them don't understand how to take care of American foulbrood, but I am trying to help them as best I can.

Livingston, Iroquois, Ford, Kankakee, LaSalle, Vermilion and McLean Counties

(Deputy J. T. Hendricks, Chatsworth)

Counties	Healthy Colonies	Diseased Colonies	Total
Livingston.....	1320	57	1377
Iroquois.....	1301	72	1373
Ford.....	323	44	367
Kankakee.....	404	13	417
LaSalle.....	126	3	129
Vermilion.....	306	34	340
McLean.....	112	9	121
Total.....	3892	232	4124

Organization and co-operation are the fundamentals in eliminating foulbrood. I am pleased to say that the beekeepers of Iroquois County have seen fit to organize, as this will help the inspector in locating various bee yards that might otherwise be neglected. It is almost impossible to find all colonies that are scattered through the country without co-operation. I have been received very cordially by most of the beekeepers with whom I have come in contact. All seemed very anxious to assist me in my work. There were few who violated the state law by moving and selling bees in the community without first having them inspected. The beginning of 1927 was hard on the bees, but as the season advanced and nectar and pollen were plentiful, the honey season was very prolific and where good queens were used a considerable surplus was stored. We beekeepers should watch our colonies and see that they have good queens and are free from disease for 1928. May the coming year be a more successful one than the past.

McLean County

(Deputy Edward C. Heldt, Stanford)

The first of my list of inspection was lost when the top of my car was destroyed in a wind storm early in the year. The rest is as follows: Number of hives inspected, 1,045; number

of diseased colonies, 61 American foulbrood, 27 European foulbrood.

The condition of the bees at the present time, December 31, is good. They carried in honey until the middle of September from the main honey flow, which was cut short by excessive rains. However, on good days they were able to gather considerable pollen until the last of November. This caused brood to be reared until very late and reports from other beekeepers around here state that there was brood in the nest the middle of December. There should be no worry around here because of light hives, as I have never seen bees go into winter with so much honey and such a mass of comparatively young bees. Old beekeepers here state that they haven't seen such a honey crop as the last season's for a good many years.

Jersey County

(Deputy C. A. Mackelden, Jerseyville)

During my inspection in 1927, I found the owners of bees were very glad to have me call on them and inspect their colonies and give them information as to treatment and care of their bees.

Most of the apiaries are small, but after talking to the owners they became enthused and most of them that had box hives began changing to modern equipment.

Peoria and Fulton Counties

(Deputy B. F. Bell, Kingston Mines)

In the year 1927 I did inspection work in Peoria and Fulton counties. I inspected 932 colonies as follows: Peoria County, 742 colonies, 26 apiaries, finding 27 colonies infected with American foulbrood and one with European foulbrood and 42 box hives. About $3\frac{3}{4}\%$ were infected. Four of the infected apiaries were moved into the county during the past season. The quality of the apiaries in Peoria County is improving very much.

In Fulton County I inspected 190 colonies in 28 apiaries and found 48 infected with American foulbrood in 9 apiaries and 44 box hives. Fulton County has no inspector and I only went where I was called. All infected combs, honey and worthless equipment were burned.

We had a good honey flow here this season and all who gave their bees good attention got good returns for their labor.

We had our annual field meet here at my home apiary again this year, which was well attended. We had demonstrations on the various parts of beekeeping, honey production and queen rearing, with a good lunch and a good time in general.

Warren County
(Wallace R. Smith, Cameron, Ill.)

Report on work and condition of bees.

Regarding a report of my work for the year ending July 1st, 1927, must say that I just started to work on inspection July 1st, so have no report up to that date.

Regarding the condition of bees last fall as they were going into the winter I would say that apparently they were going into the winter in first class shape. The superficial observer who trusts his bees to have sufficient stores in the brood nest may find when it is too late that they were short of winter stores owing to the fact that we had a late honey flow through this section and bees were rearing brood very late and they had carried stores up to the supers, much of which will be needed before the next honey flow.

Our late honey flow worked many bees to death and left many hives with a large part of their population old and nearly worn out and consequently may come through very weak or not survive the winter.

On the whole I think our bees in this section are in fairly good condition and our winter losses should be small.

Whiteside County
(Deputy Roy Roselieb, Prophetstown)

Month	Colonies	E.F.B.	A.F.B.	Box hives	Apiaries
April.....	28	0	1	2	
May.....	557	41	17	71	
June.....	402	26	8	54	
August.....	6	2	0	1	
September.....	229	2	2	13	
Total.....	1222	71	28	141	129

This report for 1927 shows 8.1 per cent of diseased colonies. This is considerable less than the report for 1926, which showed 20.3 per cent.

**Williamson, Jackson, Union, Johnson, Hamilton, Alexander,
Polaski and Massac Counties**
(Deputy Otis Kelly, Marion)

My inspection work covered eight counties in 1927. Foul-brood has never obtained a stronghold in southern Illinois and we hope we can keep it under control. The worst infected county is Williamson near Herrin, mostly among the farmers who keep bees. I did not visit the beekeepers in this territory but was around over every community to some extent. I visited 437 yards with a total of 4,867 colonies. We still have some who

keep bees in box hives but these are being disposed of rapidly.

The bees did well in this locality last season with an average of about 100 pounds per colony of the best quality honey, mostly fall flow. We have some honey from sweet clover, which is being sown more each year. We are having some trouble with orchard men who do not spray at the right time. Bees all went into winter quarters with good stores. Not many bees were packed, as most people don't think it pays this far south.

Jo Davies and Stephenson Counties
(*Deputy C. W. Duerrstein, Galena*)

I started work on May 2, 1927, and visited 165 apiaries, consisting of 2,669 colonies.

I inspected and examined 1,645 colonies and found 189 infected with European and American foulbrood; 29 of these were treated by shaking or requeening, the remaining 160 the owners and I destroyed by burning.

I have had a number of calls and letters from beekeepers of this district and they have shown good cooperation. There is no need to treat a weak colony when it is badly infected. The selling of bees on the comb must not be allowed without inspection. No one can afford to sell foulbrood, neither can anyone afford to buy it.

I inspected an apiary this year of 62 colonies which the beekeepers sold for \$600. An apiary must be clean to get this price.

Adams and Brown Counties
(*Deputy E. W. Rittler, Quincy*)

For the year 1927 I inspected 397 colonies, of which 146 were in box hives, with two having European foulbrood and 50 having American foulbrood. All colonies having American foulbrood, with a few exceptions, were burned either by owner or inspector, mostly by inspector. This territory had never been covered before.

Perry and Randolph Counties
(*Deputy Roy I. Annear, Mulkeytown*)

In 1927 I inspected about 2,000 colonies in Perry and Randolph counties. I found about 2½ per cent infected with American foulbrood. I found the largest per cent of disease in two of the best yards in Randolph County. They were both good beekeepers but did not know what American foulbrood was. I find it easy to get beekeepers to work together in trying to clean up foulbrood. Treat beekeepers fair and square and they will always respect you and be glad to have your assistance.

The acreage of sweet clover is increasing each year and beekeepers are trying to keep bees in better shape. We must all

work together for the benefit of our industry and boost the price of honey.

Will County

(Deputy Valentine W. Heussner)

My experience in bee inspection work in Will County has not turned out to be all sunshine. My motto is to greet people with a smile, be cordial, get their confidence at first sight, and still you will not always meet with success. They will ask you to show your credentials, and say "Anyone can have a star;" others will say, "I do not want my bees disturbed, so they will bother the rest of the day." Sometimes you will bid a beekeeper goodbye with that sincere feeling that you have done him some good and that he appreciates your visit, and then at the next stop you get that cold reception. They will ask you questions that signify you are not a welcome visitor. Those are just a few of the daily enjoyments of the deputy bee inspector.

In closing my bee inspection work for the year, I was working in the extreme southern end of the county. I found the conditions there very serious. Box hives and home-made frames were a drawback and made work slow and difficult. Many bees are found here between the walls of old buildings and in hollow trees.

About 1,500 colonies were examined by me and about 10 per cent of those were diseased with American foulbrood. Very few colonies were treated. Some apiaries were so contaminated that it was necessary to destroy nearly all of the equipment and remaining bees; as high as 500 brood frames had to be burned in a single apiary.

I find that some areas have not been looked over at all and plenty of work is still to be done in Will County.

Saline and Gallatin Counties

(Deputy Louie Vannis, Harrisburg)

I didn't receive my commission until the first part of June. As we were having so much rain then, I didn't get to do any work until about the middle of June and then worked only a few days. I found several beekeepers that said they didn't know there ever was such a thing as a bee inspector and some tried to hold back on letting me in. Up until July 1st I think I inspected 250 or 300 colonies. About one-third of these were in modern hives, the others ran from a candy bucket on up to a box hive. Of these, I found five with European foulbrood and one with American foulbrood. Mostly all treated by burning.

For the season I inspected 1,500 or 1,600 in all. I think there were 12 cases of European foulbrood, all of which were burned but two. There were two cases of American foulbrood and both were burned, with reaction on one of these. I had a

little trouble with this fellow but later he told me that I was a pretty good fellow after all.

Bees were in fairly good condition but a lot of them didn't have the chance they ought to have had on account of the beekeepers themselves. We have five beekeepers that produced from 1½ to 2 tons of comb honey. Three or four years ago if anybody had told us anything like that we would not have believed it.

There was a lot of requeening done this year, more than ever was known before. I, for one, ousted the blacks and requeened 53 colonies. There were 200 colonies transferred from boxes to modern hives and a good yellow queen introduced to each one of them. H. W. Wilson from Eldorado, a queen breeder, and myself deserve all credit for that.

We didn't do much with our association this year. It was a bad day the day we organized with 13 present. There were a lot more that wanted to join but luck was against us. Every time that we set a date for a meeting a rain would come along with the date. When the weather did settle down everybody was behind with their work and couldn't come.

Kane and DuPage Counties

(Deputy Ross R. Morrill, Batavia)

In 1927 I inspected in south half of Kane and west side of DuPage counties.

I found about three per cent of colonies diseased with American foulbrood. This per cent is much less than 1926. I find that the beekeepers are strong for inspection and glad to get help.

STATE LAW ON BEE DISEASES

DESCRIPTION AND TREATMENT

Illinois

Department of Agriculture

S. J. STANARD, Director

SPRINGFIELD

APIARY DIVISION

A. L. KILDOW, Chief Inspector

PUTNAM, ILL.

CIRCULAR NO. 261

NOVEMBER, 1927

The following material relating to bee diseases has been copied from Circular No. 261 (November, 1927), Illinois Department of Agriculture, at the suggestion and by permission of A. L. Kildow, Chief Inspector, Putnam, Illinois.

(Prepared by A. L. Kildow, Chief Inspector, Putnam, Ill.)

This bulletin is published especially to acquaint the public with the destructive bee diseases which are prevalent in the State and to show methods of controlling them. It is not the purpose of the state law to require the destruction of property, but on the contrary to conserve the property of beekeepers as much as possible and to place beekeeping on a paying basis. The owners of bees should do all in their power to eliminate bee diseases, and it is to the interest of every beekeeper, when disease is found among his bees, to observe and carry out treatment recommended. Some of the largest beekeepers in the State have had to fight bee diseases, and lessons thus learned have made them better beekeepers.

The treatments in this bulletin are stated as concisely as possible in order that no one will be confused. If there is any doubt as to whether or not disease exists, write to the State Bee Inspector for assistance.

STATE LAW ON BEE DISEASES

An Act to prevent the introduction and spread in Illinois of foulbrood among bees, providing for the appointment of a State Inspector of Apiaries and prescribing his powers and duties.

WHEREAS, The disease known as foulbrood exists to a very considerable extent in various portions of this State, which, if left to itself, will soon exterminate the honey-bees; and

WHEREAS, The work done by an individual beekeeper or by a State Inspector is useless so long as the official is not given authority to inspect, and, if need be, to destroy the disease when found; and

WHEREAS, There is a great loss to the beekeeper and fruit growers of the State each year by the devastating ravages of foulbrood;

SECTION 1. *Be it enacted by the People of the State of Illinois, represented in the General Assembly.* That the Governor shall appoint a State Inspector of Apiaries, who shall hold his office for the term of two years, and until his successor is appointed and qualified, and who may appoint one or more assistants, as needed, to carry on the inspection under his supervision. The Inspector of Apiaries shall receive for each day actually and necessarily spent in the performance of his duties the sum of Four Dollars to be paid upon bills of particulars certified to as correct by the said State Inspector of Apiaries, and approved by the Governor.

SEC. 2. It shall be the duty of every person maintaining or keeping any colony or colonies of bees to keep same free from the disease known as foulbrood and from other contagious diseases among bees. All beehives, bee fixtures or appurtenances, where foulbrood or other contagious or infectious disease among bees exist, are hereby declared to be nuisances to be abated as hereinafter prescribed. If the Inspector of Apiaries shall have reason to believe that any apiary is infected by foulbrood or other contagious disease, he shall have power to inspect, or cause to be inspected from time to time, such apiary, and for the purpose of such inspection he, or his assistants, are authorized during reasonable business hours to enter into or upon any farm or premises, or other building or place used for the purpose of propagating or nurturing bees. If said Inspector of Apiaries,

or his assistants, shall find by inspection that any person, firm or corporation is maintaining a nuisance as described in this section, he shall notify in writing the owner or occupant of the premises containing the nuisance so disclosed of the fact that such nuisance exists. He shall include in such a notice a statement of the conditions constituting such nuisance, and order that the same be abated within a specified time, and a direction, written or printed, pointing out the methods which shall be taken to abate the same. Such notice and order may be served personally or by depositing the same in the postoffice properly stamped, addressed to the owner or occupant of the land or premises upon which such nuisance exists, and the direction for treatments may consist of a printed circular, bulletin or report of the Inspector of Apiaries or an extract from same.

If the person so notified shall refuse or fail to abate said nuisance in the manner and in the time prescribed in said notice, the Inspector of Apiaries may cause such nuisance to be abated, and he shall certify to the owner or person in charge of the premises the cost of the abatement and if not paid to him within sixty days thereafter the same may be recovered, together with the costs of action, before any court in the State having competent jurisdiction.

In case notice and order served as aforesaid shall direct that any bees, hives, bee-fixtures or appurtenances shall be destroyed and the owner of such bees, hives, bee-fixtures or appurtenances shall consider himself aggrieved by said order, he shall have the privilege of appealing within three days of the receipt of the notice to the county court of the county in which such property is situated. The appeal shall be made in like manner as appeals are taken to the county court from judgments of justice of the peace. Written notice of said appeal served by mail upon the Inspector of Apiaries shall operate to stay all proceedings until the decision of the county court, which may, after investigating the matter, reverse, modify or affirm the order of the Inspector of Apiaries, who shall serve the same as hereinafter set forth and shall fix a time within which such decision must be carried out.

SEC. 2a. No person shall transport a colony of bees or used bee equipment, except a live queen and her attendant bees in a cage without comb or brood, from one county of this State to another county of this State, without a certificate from the Department of Agriculture, stating that it has, within sixty days before the date of shipment, inspected the colony or equipment and found it to be free from foulbrood.

SEC. 2b. No person shall transport a colony of bees or used bee equipment except a live queen and her attendant bees in a cage without comb or brood, into this State from a state

or country having an inspector of apiaries or other officer charged with similar duties, without a certificate stating that the officer has, within sixty days before the date of shipment, inspected the colony or equipment and found it to be free from foulbrood.

No person shall transport a colony of bees or used bee equipment, except a live queen and her attendant bees in a cage without comb or brood, into this State from a state not having an inspector of apiaries or other officer charged with similar duties, unless the shipper or consignee has obtained from the Department of Agriculture, upon making a sufficient showing that the colony or equipment is free from foulbrood, a permit for the shipment into the State.

SEC. 3. The Inspector of Apiaries shall, on or before the second Monday in December of each calendar year, make a report to the Governor and also to the Illinois State Beekeepers' Association, stating the number of apiaries visited, the number of those diseased and treated, the number of colonies of bees destroyed and the expense incurred in the performance of his duties.

SEC. 4. Any owner of a diseased apiary or appliances taken therefrom, who shall sell, barter or give away any such apiary, appliance, queens or bees from such apiary, expose other bees to the danger of contracting such disease, or refuse to allow the Department of Agriculture to inspect such apiary or appliances, and any person who shall violate the provisions of Section 2a or Section 2b of this Act, shall be fined not more than \$100.00.

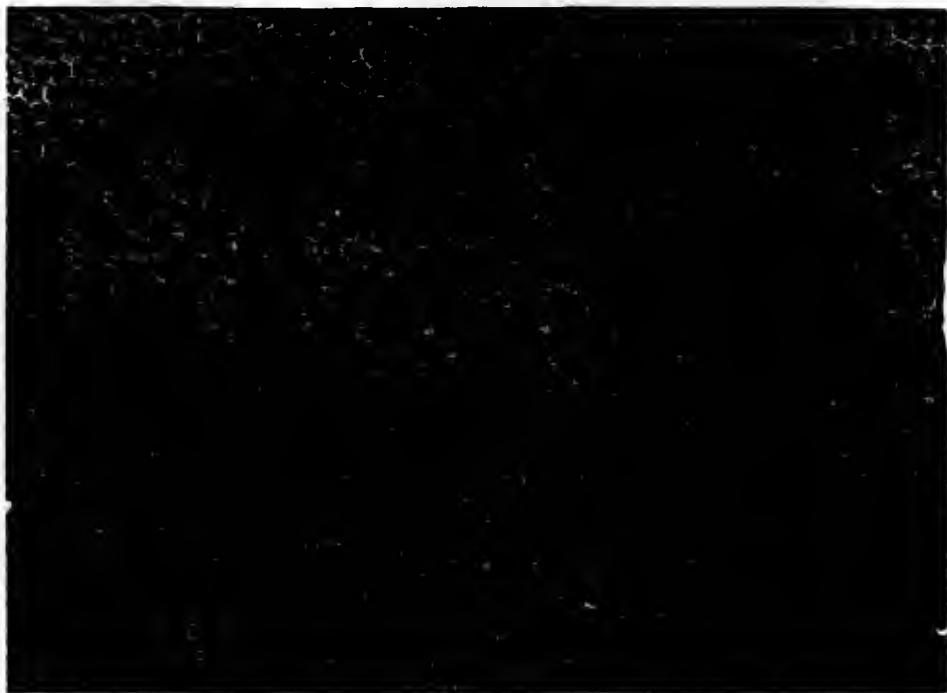
AMERICAN FOULBROOD

Description

(*Bacillus larvae*, White)

The best description which can be given is that of Dr. E. F. Phillips, in Farmers' Bulletin 442, of the Department of Agriculture:

"American foulbrood usually shows itself in the larva, just about the time that it fills the cell and after it has ceased feeding and has begun pupation (changing from the grub condition to the winged insect). At this time, it is sealed over in the comb (by the bees). The first indication of the infection is a slight brownish discoloration and the loss of the well-rounded appearance of the normal larva. At this stage the disease is not usually recognized by the beekeeper. The larva gradually sinks down in the cell and becomes darker in color and the posterior



A Comb of American Foulbrood

end lies against the bottom of the cell. By the time it has partially dried down and has become quite dark (*brown coffee colored*), the most typical characteristic of this disease manifests itself. If a match, stick or toothpick is inserted into the decaying mass and withdrawn, the larva-remains adhere to it and are

drawn out in a thread, which sometimes extends for an inch or more before breaking. This ropiness is the chief characteristic in diagnosing the disease. The larva continues to dry down and gradually loses its ropiness until it finally becomes merely a scale on the lower side wall and base of the cell. This scale adheres tightly to the cell and can be removed with difficulty from the cell wall. The scales can be observed when the comb is held with the top inclined toward the observer, so that a bright light strikes the lower side wall. A very characteristic and penetrating odor is noticeable in the decaying larva. This can be best likened to the *odor of heated glue*.

"The majority of the larvae which die of this disease are attacked after being sealed in the cells. The cappings are often entirely removed by the bees, but when they are left they usually become sunken and frequently perforated. As the healthy brood emerges, the comb shows the scattered sunken cappings covering dead larvae, giving a characteristic appearance.

"Pupae (the transforming grub, also called chrysalis) also may die of this disease, in which case they, too, dry down, become ropy and have the odor and color. The tongue frequently adheres to the upper side wall and often remains there even after the pupa has dried down to a scale."

Treatment

Previous to treatment clip the queen's wings when everything has been provided, go to the diseased colony, remove the hive from its stand and put it about three or four feet back. Place a clean empty hive on the old stand with a flat board or flat cover half way over the empty hive body with a brick on it to keep the cover from falling off.

Now smoke the diseased colony just enough to keep them quiet and proceed to take out the frames and shake or brush off the bees in the open half of the empty hive body, putting the combs in another hive body that you have placed handy to receive them, keeping them covered.

After you have all the bees in the newly prepared hive, close the hive with the board that is already over half of it. Leave the colony two days, then at the end of this time raise the board that is used as a cover about six inches and bring it down on the hive with a quick slam. This will dislodge the bees that have clustered on the under side of the cover or board. Have a hive in close reach with frames and full sheets of foundation, quickly put this prepared hive over the one that has the bees in, the bees will go up in this hive and in the morning lift the top hive off and place it on the bottom board, if any bees are on the sides of

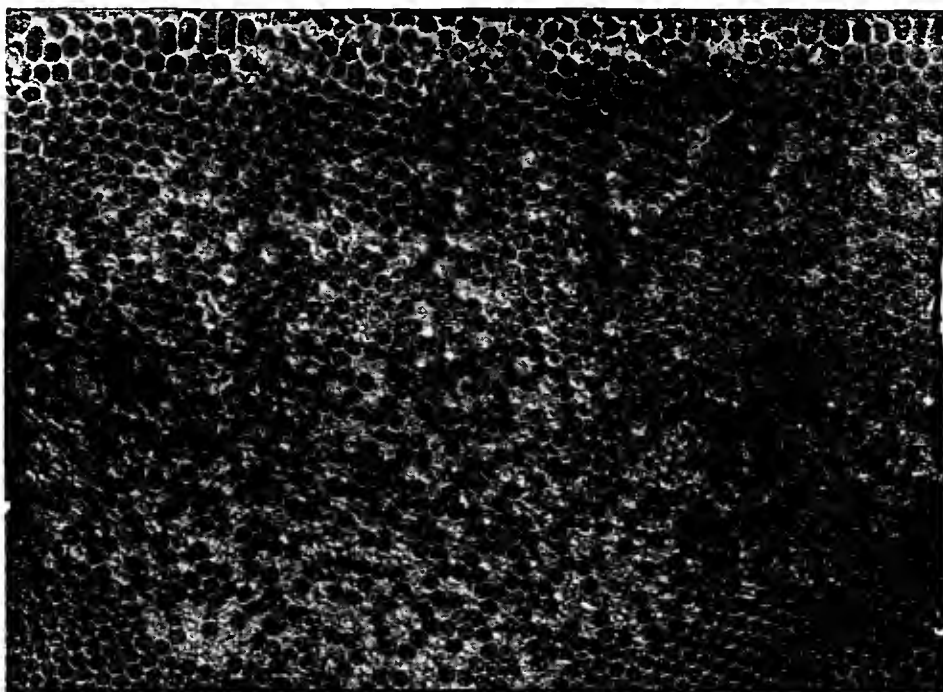
AMERICAN FOULBROOD

Description

(*Bacillus larvae*, White)

The best description which can be given is that of Dr. E. F. Phillips, in Farmers' Bulletin 442, of the Department of Agriculture:

"American foulbrood usually shows itself in the larva, just about the time that it fills the cell and after it has ceased feeding and has begun pupation (changing from the grub condition to the winged insect). At this time, it is sealed over in the comb (by the bees). The first indication of the infection is a slight brownish discoloration and the loss of the well-rounded appearance of the normal larva. At this stage the disease is not usually recognized by the beekeeper. The larva gradually sinks down in the cell and becomes darker in color and the posterior



A Comb of American Foulbrood

end lies against the bottom of the cell. By the time it has partially dried down and has become quite dark (*brown coffee colored*), the most typical characteristic of this disease manifests itself. If a match, stick or toothpick is inserted into the decaying mass and withdrawn, the larva-remains adhere to it and are

drawn out in a thread, which sometimes extends for an inch or more before breaking. This ropiness is the chief characteristic in diagnosing the disease. The larva continues to dry down and gradually loses its ropiness until it finally becomes merely a scale on the lower side wall and base of the cell. This scale adheres tightly to the cell and can be removed with difficulty from the cell wall. The scales can be observed when the comb is held with the top inclined toward the observer, so that a bright light strikes the lower side wall. A very characteristic and penetrating odor is noticeable in the decaying larva. This can be best likened to the *odor of heated glue*.

"The majority of the larvae which die of this disease are attacked after being sealed in the cells. The cappings are often entirely removed by the bees, but when they are left they usually become sunken and frequently perforated. As the healthy brood emerges, the comb shows the scattered sunken cappings covering dead larvae, giving a characteristic appearance.

"Pupae (the transforming grub, also called chrysalis) also may die of this disease, in which case they, too, dry down, become ropy and have the odor and color. The tongue frequently adheres to the upper side wall and often remains there even after the pupa has dried down to a scale."

Treatment

Previous to treatment clip the queen's wings when everything has been provided, go to the diseased colony, remove the hive from its stand and put it about three or four feet back. Place a clean empty hive on the old stand with a flat board or flat cover half way over the empty hive body with a brick on it to keep the cover from falling off.

Now smoke the diseased colony just enough to keep them quiet and proceed to take out the frames and shake or brush off the bees in the open half of the empty hive body, putting the combs in another hive body that you have placed handy to receive them, keeping them covered.

After you have all the bees in the newly prepared hive, close the hive with the board that is already over half of it. Leave the colony two days, then at the end of this time raise the board that is used as a cover about six inches and bring it down on the hive with a quick slam. This will dislodge the bees that have clustered on the under side of the cover or board. Have a hive in close reach with frames and full sheets of foundation, quickly put this prepared hive over the one that has the bees in, the bees will go up in this hive and in the morning lift the top hive off and place it on the bottom board, if any bees are on the sides of

the hive body brush them in front of the colony and your treatment is complete.

Now take the diseased combs and burn them. If any comb has been built on the board or cover, this also must be burned. If the inspector finds a colony that is too badly diseased to warrant treatment he may order same burned.

EUROPEAN FOULBROOD

Description

European foulbrood usually attacks the larva at an earlier stage of its development than American foulbrood and while it is still curled at the base of the cell. A small percentage of larvæ die after capping, but sometimes quite young larvæ are attacked. Sunken and perforated cappings may exist as in American foulbrood. The earliest indication of the disease is a slight yellow or gray discoloration and uneasy movement of the larva in the cell. It loses its well-rounded opaque appearance and becomes slightly translucent, so that the tracheae may become prominent giving the larva a clear segmented appearance. Later the color changes to a decided yellow or gray and the translucency is lost. The yellow color is the chief characteristic of this disease. The dead larva appears as a moist, somewhat collapsed mass, giving the appearance of being melted. The larva finally dries in a grayish-brown scale against the base of the cell, or a shapeless mass on the lower side wall. Very few scales are black. The scales are not adhesive, but easily removed, and the bees carry out a great many of them. Decaying larvae which have died of this disease are usually not ropy as in American foulbrood, but a slight ropiness is sometimes observed. Sometimes a sour odor is present, which reminds one of yeast fermentation.

Treatment

As soon as the disease shows, kill the old queen, and if the colony is common brown or black, keep all queen cells cut out. Fifteen days after you kill the queen, introduce a young laying Italian queen. If the colony be of good Italian stock, allow the colony to rear a queen. Keep the colony *strong*; a weak colony will not rid themselves of disease.

OLD BOX HIVES

Remove a portion of the top so you can blow smoke in, turn the hive upside down, and place a box as nearly the size of the old hive as you can get, on top. Smoke into the opening that you have made and drum on the box, until you have all the bees out of the old hive into the box on top.

Place the box containing the bees where the old hive formerly stood. Saturate the old hive and combs with kerosene and destroy as instructed in American foulbrood.

In two or three days dump the bees from the box into a hive body which is placed on the stand where the box was and fill the hive body with frames of foundation and place the cover on your hive. Destroy all combs that were built in the box.

If there is no disease in the old box hive, the bees may be run on full sheets of foundation at once.

SUGGESTIONS

By adhering to the following suggestions and avoiding the "Don'ts" the beekeeper may save himself much trouble and worry as well as financial loss.

Don't use frame hives without foundation.

Don't use box hives; bees cannot be controlled in them.

Don't allow robbing in your apiary.

Don't waste your time trying to save a colony with only a handful of bees.

Don't buy everything you see advertised in bee papers, as they may not all fit your conditions.

Leave only a small entrance during spring, until your colonies show by clustering at entrance that a larger opening is necessary.

Keep all colonies strong, even should you have to resort to feeding in order to have the colony breed up. Feed granulated sugar syrup; a pound of sugar to a pound of water.

Use full sheets of foundation in your brood frames.

Keep a good strain of Italian bees.

Read the bee journals. The price of a good bee journal is money well spent.

If you winter your bees out of doors, give them adequate packing, using forest leaves or other absorbents for this purpose. Place at least six inches of leaves over the brood frames and at least four inches of leaves around the hives, except the front, held in place by wire netting.

Black bees and low-grade hybrids are the most susceptible to European foulbrood. Keep only pure Italian bees.

Make an effort to produce more honey this year than ever before.

**PROGRAM OF ANNUAL SHORT COURSE FOR BEEKEEPERS
FARMERS' WEEK—JANUARY 9-13, 1928**

BY BEEKEEPING DIVISION

University of Illinois, Urbana-Champaign

TUESDAY, JANUARY 10, 1928

- 8:30 A. M.—Useful Structures of the Honeybee. (Illustrated). V. G. Milum.
9:15 A. M.—Through the Year with the Bee Colony. V. G. Milum.
10:15 A. M.—Practical Demonstrations on Construction of Hives, Extracting and Bottling Honey, etc. Apicultural Students.
1:15 P. M.—Joint Session—European Corn Borer.
4:30-10:00—The Little International Horse Show and Pulling Contest.

WEDNESDAY, JANUARY 11, 1928

- 8:30 A. M.—The Fundamentals of Insect Control. (Illustrated). C. L. Metcalf, Department of Entomology.
10:15 A. M.—The Habits of Bumblebees and Their Values. (Illustrated). T. H. Frison, Natural History Survey.
11:15 A. M.—Making a Start With Bees. George Rasmussen, Secretary, Champaign County Beekeepers' Association.
1:15 P. M.—Some Economics Which Can Be Effected in Honey Production. E. L. Secrist, U. S. Bee Culture Laboratories, Washington, D. C.
2:00 P. M.—Honey Plants, Their Characteristics and Distribution. (Illustrated.) Frank C. Pellett, Associate Editor, American Bee Journal, Hamilton, Illinois.
3:00 P. M.—Joint Session of All Departments.

THURSDAY, JANUARY 12, 1928

- 8:30 A. M.—Practical Demonstration on How to Use U. S. Honey Grades. E. L. Secrist, Washington, D. C.
9:15 A. M.—Adapting System of Management to Locality. (Illustrated.) F. C. Pellett.
10:15 A. M.—The Basic Laws of Queen Rearing and Their Application. Jay Smith, Vincennes, Indiana.
1:15 P. M.—Some Ways of Advertising and Marketing Honey. (Illustrated.) Frank C. Pellett.
2:00 P. M.—General Management of the Colony for Honey Production. Jay Smith.
3:00 P. M.—Joint Session of All Departments.

FRIDAY, JANUARY 13, 1928

- 8:30 A. M.—Removal and Care of the Honey Crop. V. G. Milum.
9:15 A. M.—Operating an 800-Colony Apiary in North Dakota. Warren C. Ashley.
9:45 A. M.—Question Box.

- 10:15 A. M.—The Causes and Symptoms of Bee Diseases. V. G. Milum.
11:15 A. M.—The Illinois Apiary Inspection System and the Treatment
of Bee Diseases. W. H. Snyder, Deputy.

The above program is the type of instruction for beekeepers offered in January of each year in conjunction with the Annual Farmers' Week of the College of Agriculture, University of Illinois. In addition to the beekeeping session, visitors may attend sessions in Horticulture, Farm Mechanics, Farm Management, Dairying, Animal Husbandry and Agronomy. The first afternoon as well as a part of the remaining afternoons and each evening are given over to joint programs for all sections on topics which are of mutual interest to all.

The registered attendance of beekeepers at the 1928 session numbered 65 beekeepers, many of whom expressed satisfaction as to the type of program being offered. More beekeepers should take advantage of this opportunity in future years.

FORMATION OF THE ILLINOIS STATE BEEKEEPERS' ASSOCIATION

SPRINGFIELD, ILL., *February 26, 1891.*

The Capitol Beekeepers' Association was called to order by President P. J. England.

Previous notice having been given that an effort would be made to form a State Association, and there being present beekeepers from different parts of the State, by motion, a recess was taken in order to form such an association.

P. J. England was chosen temporary chairman and C. E. Yocum temporary secretary. On motion, the Chair appointed Thos. G. Newman, C. P. Dadant and Hon. J. M. Hambaugh a Committee on Constitution.

Col. Charles F. Mills addressed the meeting on the needs of a State association and stated that it was his opinion that the beekeepers should have a liberal appropriation for a State Apiarian Exhibit at the World's Columbia Exposition.

A motion to adjourn 'till 1:30 p. m. prevailed.

AFTERNOON SESSION

The Committee on Constitution reported a form for same which, on motion, was read by the Secretary, by sections serially.

Geo. F. Robbins moved to substitute the word "shall" for "may" in the last clause of Section 1, article III. This led to a very animated discussion, and the motion was lost.

J. A. Stone moved to amend the above-named section by striking out the word "ladies" and all that followed of the same section, which motion led to further discussion, and motion finally prevailed.

Section 2, Article II, relating to a quorum, was on motion, entirely stricken out.

Mr. Robbins moved to amend Article V by adding the words "Thirty days' notice having been given to each member." Prevailed.

Thos. G. Newman moved to adopt the Constitution, so amended, as a whole. Which motion prevailed.

(See Constitution).

J. A. Stone moved that the Chair appoint a Nominating Committee of three on permanent organization. Prevailed.

Chair appointed as such committee, Col. Charles F. Mills, Hon. J. M. Hambaugh and C. P. Dadant.

Committee retired and in a few minutes returned, submitting the following named persons as candidates for their respective offices:

For President—P. J. England, Fancy Prairie.

For Vice-Presidents—Mrs. L. Harrison, Peoria; C. P. Dadant, Hamilton; W. T. F. Petty, Pittsfield; Hon. J. M. Hambaugh, Spring; Dr. C. C. Miller, Marengo.

Secretary—Jas. A. Stone, Bradfordton.

Treasurer—A. N. Draper, Upper Alton.

Mr. Black moved the adoption of the report of the Committee on Nominations. The motion prevailed, and the officers as named by the committee were declared elected for the ensuing year.

Hon. J. M. Hambaugh moved that Mr. Thos. G. Newman, Editor, American Bee Journal, of Chicago, be made the first honorary member of the association. Prevailed.

At this point, Col. Chas. F. Mills said:

"Mr. Chairman, I want to be the first one to pay my dollar for membership," at the same time suiting his action to his words, and others followed his example, as follows:

CHARTER MEMBERS

Col. Charles F. Mills, Springfield
Hon. J. M. Hambaugh, Spring
Hon. J. S. Lyman, Farmingdale
C. P. Dadant, Hamilton
Chas. Dadant, Hamilton
A. N. Draper, Upper Alton
S. N. Black, Clayton
Aaron Coppin, Wenona

Geo. F. Robbins, Mechanicsburg
J. W. Yocum, Williamsville
Thos. S. Wallace, Clayton
A. J. England, Fancy Prairie
P. J. England, Fancy Prairie
C. E. Yocum, Sherman
Jas. A. Stone, Bradfordton

FIRST HONORARY MEMBER

Thomas G. Newman, Editor American Bee Journal, Chicago.

STATE CHARTER
STATE OF ILLINOIS—DEPARTMENT OF STATE

Isaac N. Pearson, Secretary of State

To all to whom these presents shall come—GREETING:

Whereas, A certificate duly signed and acknowledged having been filed in the office of the Secretary of State on the 27th day of February, A. D. 1891, for the organization of the Illinois State Beekeepers' Association, under and in accordance with the provisions of "An Act Concerning Corporations," approved April 18, 1872, and in force July 1, 1872, and all acts amendatory thereof, a copy of which certificate is hereunto attached.

Now, Therefore, I, Isaac N. Pearson, Secretary of State of the State of Illinois, by virtue of the powers and duties vested in me by law, do hereby certify that the said, The Illinois State Beekeepers' Association, is a legally organized corporation under the laws of the State.

In Testimony Whereof, I hereunto set my hand and cause to be affixed the great seal of State.

Done at the city of Springfield, this 27th day of February, in the year of our Lord one thousand eight hundred and ninety-one, and the Independence of the United States the one hundred and fifteenth.

[SEAL]

I. N. PEARSON, *Secretary of State.*

STATE OF ILLINOIS, }
 County of Sangamon } ss.

To Isaac N. Pearson, Secretary of State:

We, the undersigned, Perry J. England, Jas. A. Stone, and Albert N. Draper, citizens of the United States, propose to form a corporation, under an act of the General Assembly of the State of Illinois, entitled, "An Act Concerning Corporations," approved April 18, 1872, and all acts amendatory thereof; and for the purpose of such organizations, we hereby state as follows, to-wit:

1. The name of such corporation is, The Illinois State Beekeepers' Association.
2. The object for which it is formed is to promote the general interests of the pursuit of bee-culture.
3. The management of the aforesaid Association shall be vested in a board of three Directors, who are to be elected annually.
4. The following persons are hereby selected as the Directors, to control and manage said corporation for the first year of its corporate existence, viz: Perry J. England, Jas. A. Stone, and Albert N. Draper.
5. The location is in Springfield, in the county of Sangamon, State of Illinois.

(Signed) PERRY J. ENGLAND,
 JAS. A. STONE,
 ALBERT N. DRAPER.

STATE OF ILLINOIS, }
Sangamon County, } ss.

I, S. Mendenhall, a notary public in and for the county and State aforesaid, do hereby certify that on this 26th day of February, A. D. 1891, personally appeared before me, Perry J. England, James A. Stone, and Albert N. Draper, to me personally known to be the same persons who executed the foregoing certificate, and severally acknowledged that they had executed the same for the purpose therein set forth.

In witness whereof, I have hereunto set my hand and seal the day and year above written.

[SEAL]

S. MENDENHALL, *Notary Public.*

CONSTITUTION AND BY-LAWS OF THE ILLINOIS STATE BEEKEEPERS' ASSOCIATION

Constitution

ADOPTED FEB. 26, 1891

ARTICLE I.

This organization shall be known as The Illinois State Beekeepers' Association, and its principal place of business shall be at Springfield, Illinois.

ARTICLE II.—OBJECT.

Its object shall be to promote the general interests of the pursuit of bee-culture.

ARTICLE III.—MEMBERSHIP.

SECTION 1. Any person interested in apiculture may become a member upon the payment to the Secretary of an annual fee of one dollar and fifty cents (\$1.50). (Since amended to \$1.75). (Amendment adopted at annual meeting, December, 1919): And any affiliating association, as a body may become members on payment of an aggregate fee of fifty cents (50c) per member, as amended November, 1910.

SEC. 2. Any person may become honorary member by receiving a majority vote at any regular meeting.

ARTICLE IV.—OFFICERS.

SECTION 1. The officers of this association shall be, President, Vice President, Secretary and Treasurer. (Since amended to include 5 regional Vice Presidents.) Their terms of office shall be for one year, or until their successors are elected and qualified.

SEC. 2. The President, Secretary and Treasurer shall constitute the Executive Committee.

SEC. 3. Vacancies in office—by death, resignation and otherwise—shall be filled by the Executive Committee until the next annual meeting.

ARTICLE V.—AMENDMENTS.

This Constitution shall be amended at any annual meeting by a two-thirds vote of all the members present—thirty days' notice having been given to each member of the association.

By-Laws

ARTICLE I.

The officers of the association shall be elected by ballot and by a majority vote.

ARTICLE II.

It shall be the duty of the President to call and preserve order at all meetings of this association; to call for all reports of officers and committees; to put to vote all motions regularly seconded; to count the vote at all elections, and declare the results; to decide upon all questions of order, and to deliver an address at each annual meeting.

ARTICLE III.

The Vice Presidents shall be numbered, respectively, First, Second, Third, Fourth, and Fifth, and it shall be the duty of one of them, in his respective order, to preside in the absence of the President.

ARTICLE IV.

SECTION 1. It shall be the duty of the Secretary to report all proceedings of the association, and to record the same, when approved, in the Secretary's book; to conduct all correspondence of the association, and to file and preserve all papers belonging to the same; to receive the annual dues and pay them over to the Treasurer, taking his receipt for the same; to take and record the name and address of every member of the association; to cause the Constitution and By-Laws to be printed in appropriate form and in such quantities as may be directed by the Executive Committee from time to time, and see that each member is provided with a copy thereof; to make out and publish annually, as far as practicable, statistical table showing the number of colonies owned in the spring and fall, and the amount of honey and wax produced by each member, together with such other information as may be deemed important, or be directed by the Executive Committee; and to give notice of all meetings of the association in the leading papers of the State, and in the bee journals at least four weeks prior to the time of such meeting.

SEC. 2. The Secretary shall be allowed a reasonable compensation for his services, and to appoint an assistant Secretary if deemed necessary.

ARTICLE V.

It shall be the duty of the Treasurer to take charge of all funds of the association, and to pay them out upon the order of the Executive Committee, taking a receipt for the same; and to render a report of all receipts and expenditures at each annual meeting.

ARTICLE VI.

It shall be the duty of the Executive Committee to select subjects for discussion and appoint members to deliver addresses or read essays, and to transact all interim business.

ARTICLE VII.

The meeting of the association shall be, as far as practicable, governed by the following order of business:

- Call to order.
- Reading minutes of last meeting.
- President's address.
- Secretary's report.
- Treasurer's report.
- Reports of committees.
- Unfinished business.
- Reception of members and collection.
- Miscellaneous business.
- Election and installation of officers.
- Discussion.
- Adjournment.

ARTICLE VIII.

These By-Laws may be amended by a two-thirds vote of all the members present at any annual meeting.

C. E. YOCUM,
AARON COPPIN,
GEO. F. ROBBINS.

BEEKEEPERS' ASSOCIATION

The Original Bill

§ 1. Appropriates \$1,000 per annum
—proviso.

§ 2. How drawn.
§ 3. Annual Report.

AN ACT making an appropriation for the Illinois State Beekeepers' Association.

WHEREAS, The members of the Illinois State Beekeepers' Association have for years given much time and labor without compensation in the endeavor to promote the interests of the beekeepers of the State; and,

WHEREAS, The importance of the industry to the farmers and fruit-growers of the State warrants the expenditure of a reasonable sum for the holding of annual meetings, the publication of reports and papers containing practical information concerning beekeeping, therefore, to sustain the same and enable this organization to defray the expenses of annual meetings, publishing reports, suppressing foulbrood among bees in the State, and promote the industry in Illinois;

SECTION 1. *Be it enacted by the People of the State of Illinois, represented in the General Assembly:* That there be and is hereby appropriated for the use of the Illinois State Beekeepers' Association the sum of one thousand dollars (\$1,000) per annum for the year 1917-1918, for the purpose of advancing the growth and developing the interests of the beekeepers of Illinois, said sum to be expended under the direction of the Illinois State Beekeepers' Association for the purpose of paying the expenses of holding annual meetings, publishing the proceedings of said meetings, suppressing foulbrood among bees in Illinois, etc.

Provided, however, That no officer or officers of the Illinois State Beekeepers' Association shall be entitled to receive any moneys compensation whatever for any services rendered for the same, out of this fund.

SEC. 2. That on the order of the President, countersigned by the Secretary of the Illinois State Beekeepers' Association, and approved by the Governor, the Auditor of Public Accounts shall draw his warrant on the Treasurer of the State of Illinois in favor of the treasury of the Illinois State Beekeepers' Association for the sum herein appropriated.

SEC. 3. It shall be the duty of the Treasurer of the Illinois State Beekeepers' Association to pay out of said appropriation, on itemized and receipted vouchers, such sums as may be authorized by vote of said organization on the order of the President countersigned by the Secretary, and make annual report to the Governor of all such expenditures, as provided by law.

Itemized in the Omnibus Bill as follows:

For shorthand reporting.....	\$ 200.00
For postage and stationery.....	50.00
For printing.....	550.00
Expense of meetings.....	200.00

Total amount of the appropriation.....	\$1000.00
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The Assembly ruled that this is not to be paid in LUMP, but drawn on itemized accounts.

CODE OF RULES AND STANDARDS FOR GRADING APIARIAN EXHIBITS AT FAIRS AS ADOPTED BY ILLINOIS STATE BEEKEEPERS' ASSOCIATION

Comb Honey

Rule 1. Comb honey shall be marked on a scale of 100, as follows:

Quantity	40	Style of display.....	20
Quality	40		

Rule 2. Points of quality should be:

Variety	5	Straightness of comb.....	5
Clearness of capping.....	10	Uniformity	5
Completeness of capping.....	5	Style of section.....	5
Completeness of filling.....	5		

Remarks: 1. By variety is meant different kinds, with regard to the sources from which the honey is gathered, which adds much interest to an exhibit.

2. By clearness of capping is meant freedom from travel stain and a water soaked appearance. This point is marked a little high, because it is a most important one. There is no better test of the quality of comb honey than the appearance of the cappings. If honey is taken off at the proper time, and cared for as it should be, so as to preserve its original clear color, body and flavor will take care of themselves, for excellence in the last two points always accompanies excellence in the first. Clover and basswood honey should be white; heartease, a dull white tinged with yellow; and Spanish needle, a bright yellow.

3. By uniformity is meant closeness of resemblance in the sections composing the exhibit.

4. By style is meant neatness of the sections, freedom from propolis, etc.

5. Honey so arranged as to show every section should score the highest in style of display, and everything that may add to the tastiness and attractiveness of an exhibit should be considered.

Extracted Honey

Rule 1. Extracted honey should be marked on a scale of 100, as follows:

Quantity	40	Style and display.....	15
Quality	45		

Rule 2. Points of quality should be:

Variety	10	Style of package.....	10
Clearness of color.....	5	Variety of package.....	5
Body	5	Finish	5
Flavor	5		

Remarks: 1. Light clover honey pouring out of a vessel is a very light straw color; Spanish needle, a golden hue, and dark clover honey, a dull amber.

2. Style of package is rated a little high, not only because in that consists the principal beauty of an exhibit of extracted honey, but also because it involves the best package for marketing. We want to show honey in the best shape for the retail trade, and that, in this case, means the most attractive style for exhibition. Glass packages should be given the preference over tin; flint glass over green, and smaller vessels over larger, provided the latter run over one or two pounds.

3. By variety of package is meant chiefly different sizes; but small pails for retailing, and, in addition, cans or kegs (not too large) for wholesaling, may be considered. In the former case, pails painted in assorted colors, and lettered "Pure Honey," should be given the preference.

4. By finish is meant capping, labeling, etc.

5. Less depends upon the manner of arranging an exhibit of extracted than of comb honey, and for that reason, as well as to give a higher number of points to style of package, a smaller scale is allowed for style of display.

Samples of Comb and Extracted Honey

Rule 1. Single cases of comb honey, entered as such for separate premiums, should be judged by substantially the same rules as those given for a display of comb honey, and samples of extracted, by those governing displays of extracted honey.

Rule 2. Samples of comb or extracted honey, as above, may be considered as part of the general display in their respective departments.

Granulated Honey

Rule 1. Candied or granulated honey should be judged by the rules for extracted honey, except as below.

Rule 2. Points of quality should be:

Variety	10	Style of package.....	10
Fineness of grain.....	5	Variety of package.....	5
Color	5	Finish	5
Flavor	5		

Rule 3. An exhibit of granulated honey may be entered or considered as part of a display of extracted honey.

Nuclei of Bees

Rule. Bees in observation hives should be marked on a scale of 100, as follows:

Color and markings.....	30	Quietness	5
Size of bees.....	30	Style of comb.....	5
Brood	10	Style of hive.....	10
Queen	10		

Remarks: 1. Bees should be exhibited only in the form of single frame nuclei, in hives or cages with glass sides.

2. Italian bees should show three or more bands, ranging from leather color to golden or light yellow.

3. The markings of other races should be those claimed for those races in their purity.

4. A nucleus from which the queen is omitted should score zero on that point.

5. The largest quantity of brood in all stages or nearest to that should score the highest in that respect.

6. The straightest, smoothest and most complete comb with the most honey consistent with the most brood, should score the highest in that respect.

7. That hive which is neatest and best made and shows the bees, etc., to the best advantage should score the highest.

Queen Bees

Rule. Queen bees in cages should be marked on a scale of 100, as follows:

Quantity	40	Quality and variety.....	40
Style of caging and display.....	20		

Remarks: 1. The best in quality consistent with variety should score the highest. A preponderance of Italian queens should outweigh a preponderance of black ones, or, perhaps, of any other race or strain; but sample queens of any or all varieties should be duly considered. Under the head of quality should also be considered the attendant bees. There should be about a dozen with each queen.

2. Neatness and finish of cages should receive due consideration, but the principal points in style are to make and arrange the cages so as to show the inmates to the best advantage.

Beeswax

Rule. Beeswax should be marked on a scale of 100, as follows:

Quantity	40	Quality	40
Style of display.....	20		

Remarks: 1. Pale, clear, yellow specimens should score the highest, and the darker grades should come next in order.

2. By style is meant chiefly the forms in which the wax is molded and put up for exhibition. Thin cakes or small pieces are more desirable in the retail trade than larger ones. Some attention may be given to novelty and variety.

BEES AND HONEY PREMIUM WINNERS—1927 ILLINOIS STATE FAIR

Class J. Apiary—Amount Offered, \$574.00

T. P. SMITH, Danville.....Member in Charge
DR. A. C. BAXTER, Springfield.....Superintendent
E. W. RITTLER, Quincy.....Judge

Bees and Honey

Case of white comb honey, 24 sections: 1st, \$4. Frank Bishop, Taylorville, Ill.; 2nd, \$3. Otis Prickett, Lowder, Ill.; 3rd, \$2. Mrs. Isabelle Coppin, Wenona, Ill.; 4th, \$1. Charles M. Ong, Champaign, Ill.

Case of amber comb honey, 24 section: 1st, \$4. Mrs. Isabelle Coppin; 2nd, \$3. Charles M. Ong.

Frame of comb honey for extracting: 1st, \$5. Mrs. Isabelle Coppin; 2nd, \$3. Otis Prickett; 3rd, \$2. Frank Bishop; 4th, \$1. Chas. M. Ong; 5th, Marshall Maust, Wenona, Ill.

Collection of labeled cases containing 12 or more sections of white and amber honey: 1st, \$8. Mrs. Isabelle Coppin; 2nd, \$5. Charles M. Ong; 3rd, \$3. Otis Prickett; 4th, \$2. Frank Bishop; 5th, \$1. Marshall Maust.

Display of comb honey: 1st, \$30. Mrs. Isabelle Coppin; 2nd, \$25. Frank Bishop; 3rd, \$20. Charles M. Ong, 4th, \$15. Otis Prickett; 5th, \$10. Marshall Maust.

Display of light extracted honey, 40 to 60 pounds: 1st, \$8. Jas. A. Stone and Sons, Farmingdale, Ill.; 2nd, \$5. Mrs. Isabelle Coppin; 3rd, \$3. Charles M. Ong; 4th, \$2. Jas. A. Stone & Sons, Farmingdale, Ill.; 5th, \$1. Otis Prickett.

Display of amber extracted honey, 40 to 60 pounds: 1st, \$8. Jas. A. Stone and Sons; 2nd, \$5. Mrs. Isabelle Coppin; 3rd, \$3. Charles M. Ong.

Display of extracted honey: 1st, \$30. Jas. A. Stone and Sons; 2nd, \$25. Frank Bishop; 3rd, \$20. Mrs. Isabelle Coppin; 4th, \$15. Charles M. Ong; 5th, \$10. Otis Prickett.

Display of candied honey: 1st, \$30. Jas. A. Stone and Sons; 2nd, \$25. Frank Bishop; 3rd, \$20. Mrs. Isabelle Coppin; 4th, \$15. Otis Prickett; 5th, \$10. Charles M. Ong.

Display of designs in comb honey, executed by the bees under control of the apiarist: 1st, \$20. Frank Bishop; 2nd, \$15. Mrs. Isabelle Coppin; 3rd, \$10. Marshall Maust; 4th, \$5. Charles M. Ong.

One frame observatory hive, three banded Italian bees with queen: 1st, \$6. Otis Prickett; 2nd, \$4. Frank Bishop; 3rd, \$2. Aaron Coppin.

One frame observatory hive, Golden Italian bees with queen: 1st, \$6. Aaron Coppin; 2nd, \$4. Frank Bishop.

Display of beeswax and designs in wax, not less than fifty pounds of wax: 1st, \$30. Frank Bishop; 2nd, \$25. Mrs. Isabelle Coppin; 3rd, \$20. James A. Stone and Sons, 4th, \$15. Otis Prickett; 5th, \$10. Charles M. Ong.

Honey vinegar, one-half gallon, with recipe for making: 1st, \$4. Marshall Maust; 2nd, \$3. Frank Bishop; 3rd, \$2. Mrs. Isabelle Coppin; 4th, \$1. Charles M. Ong.

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